Serviceanweisung
Service manual

Ident-Nr. 36566 00

MIDI 2750 RC

Abgleichanweisung Tuner

Alignment procedure tuner

Condition

Amplitude Modulation (AM)
1. Modulation : 30% 1 KHz
2. Input level : 74dB / m (5mV / m) .
3. Generator output : IRE Loop 24 in (60cm) spacing.

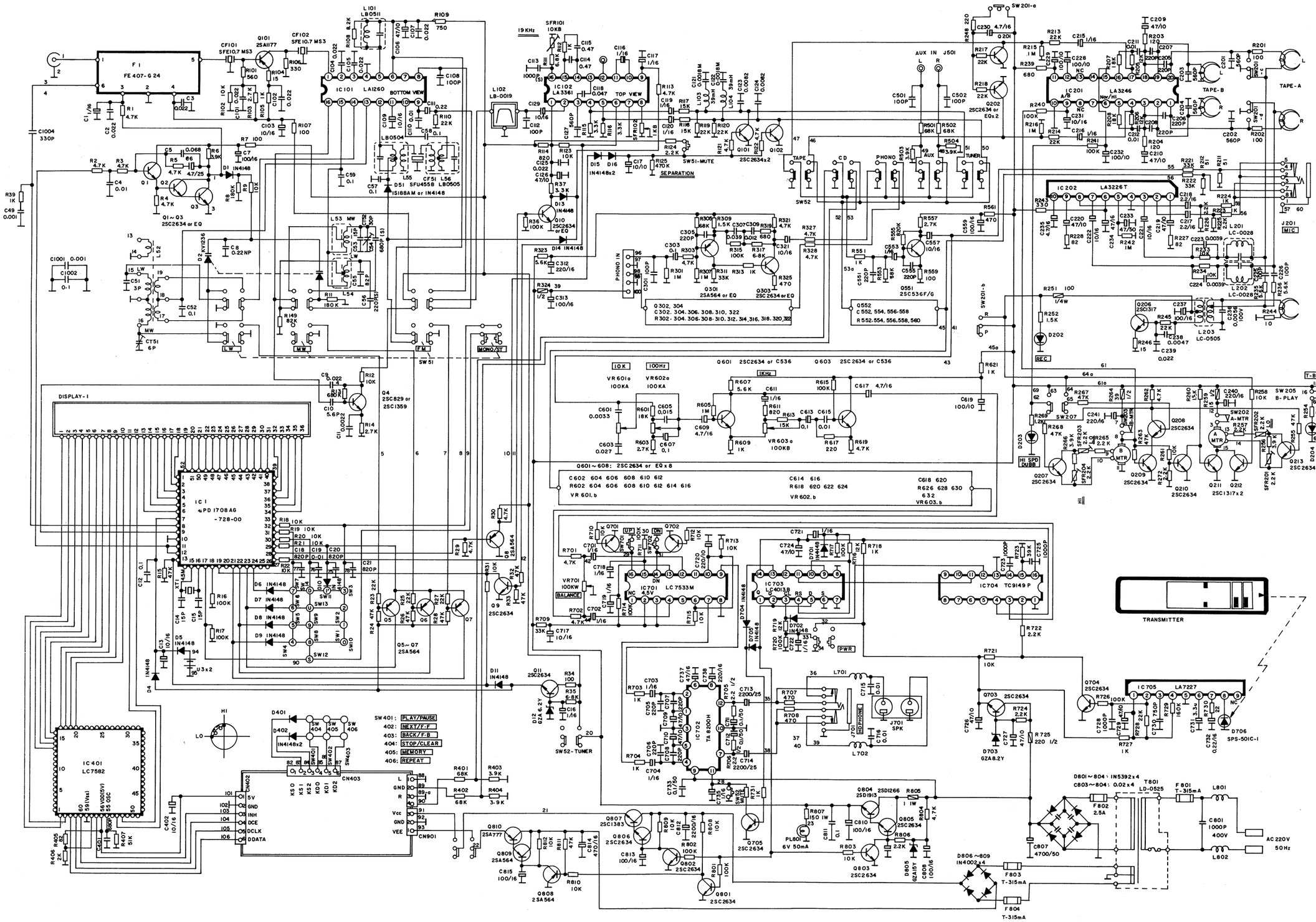
Frequency Modulation (FM)
1. Modulation : 1000 Hz with 40 KHz
2. Input level : 60dB (1mV).
3. Generator output : To the antenna terminal through 75 ohm unbalanced dummy antenna.

Frequency Modulation (MPX)
1. Modulation : 1000 Hz,L or R channel only
   Main carrier (L + R) 40 KHz, Dev.
   Sub carrier (L - R) 40 KHz, Dev.
   19 KHz pilot 6 KHz, Dev.

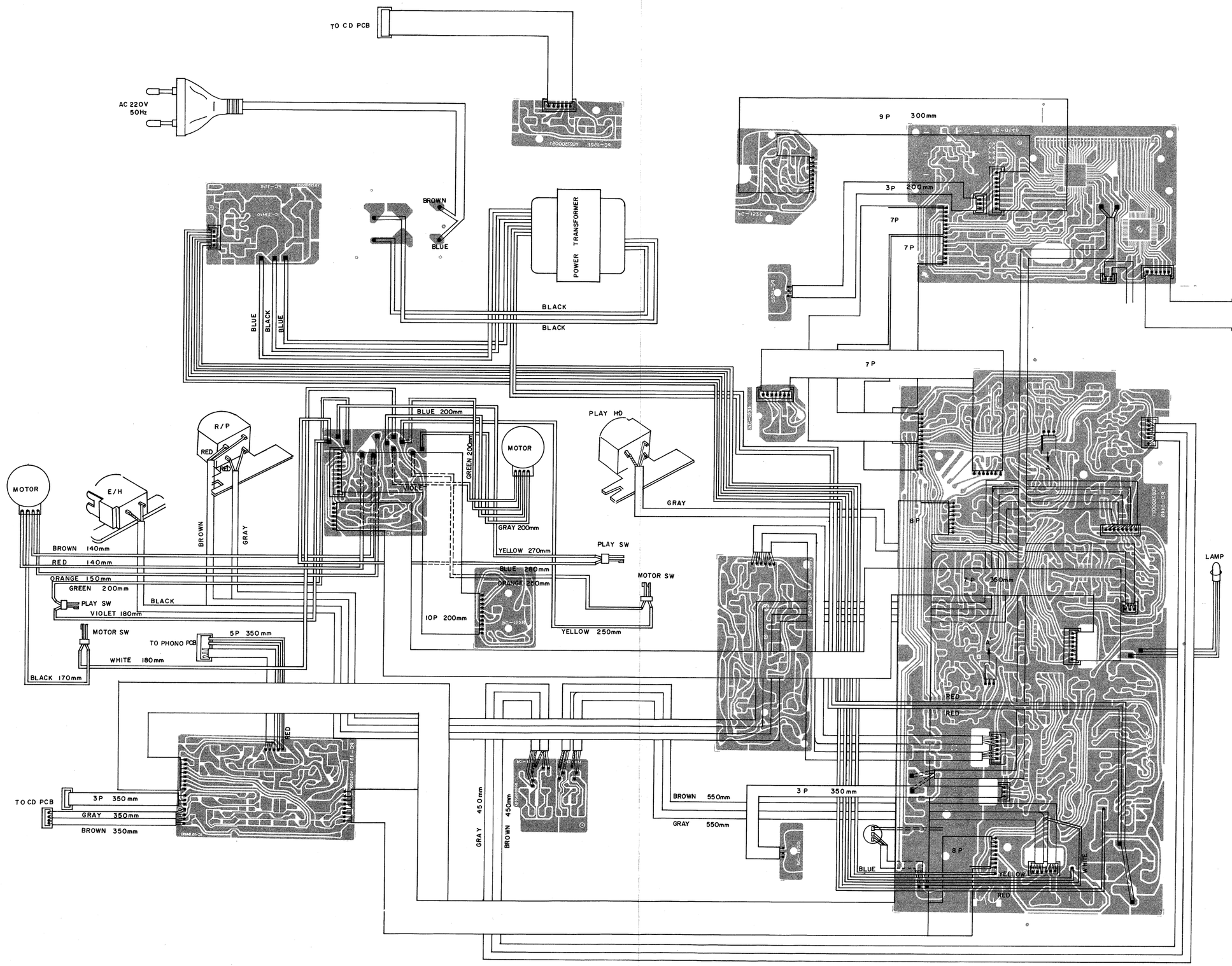
STEP	Signal or Sweep Generator		Dial Setting	Output Indicator	Adjustor	Adjust for
	Connection	Frequency		Connection		
	AM IF					
1.	Set the function selector to " MW "					
2.	To Loop antenna	455 KHz	Low end	IF Sweep generator R 210	L 101	Flat and MAX.
	MW RF					
3.						
4.	SAME AS STEP (2)	600 KHz	600 KHz	SAME AS STEP (3)	L 53	MAX.
5.	SAME AS STEP (2)		1000 KHz	SAME AS STEP (3)	AM BAR ANT L 52	MAX.
6.	SAME AS STEP (2)	1400 KHz	1400 KHz	SAME AS STEP (3)	CT 51	MAX.
7.	REPEAT (4) AND (6)		LW RF			
8.	Set the function selector to " LW "					
9.	SAME AS STEP (2)	137 KHz	Low end			137 $\pm$ 5 KHz
10.	SAME AS STEP (2)	290 KHz	High end			290 $\pm$ 5 KHz
11.						
12.	SAME AS STEP (2)	150 KHz		SAME AS STEP (3)	L 54	MAX.
13.	SAME AS STEP (2)	250 KHz		SAME AS STEP (3)	LW BAR ANT L 52	MAX.
14.	Repeat steps (12) and (13).					
	FM IF					
15.	Set the function selector to "FM "					
16.	Throught dummy ant	10.7 MHz	Low end	IF Sweep generator R 209	L 101	" S " curve
	FM 19 KHz Pilot signal					
17.				Frequency counter R 263	SFR 101	19 $\pm$ 0.01 KHz
	STEREO L.R. SEPRATION					
18.			98 MHz	VTVM SCOPE PILOT GENERATOR SSG	SFR 102	

Schaltbild (ohne CD-player)

Circuit diagram (without CD player)



Verdrahtungsplan
Wiring diagram

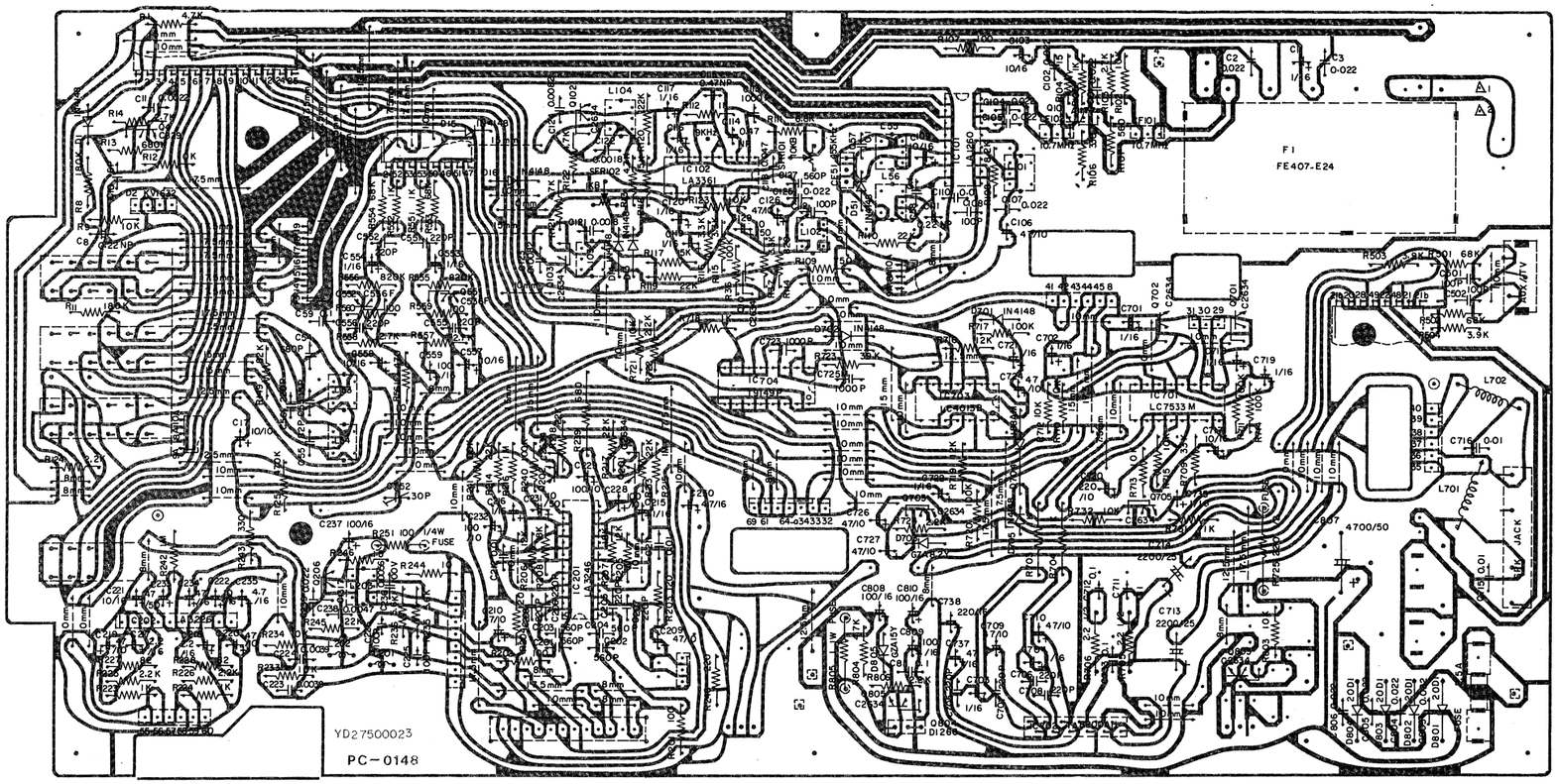


Platinendarstellung Leiterbahnseite

P.C.B. diagrams Bottom view

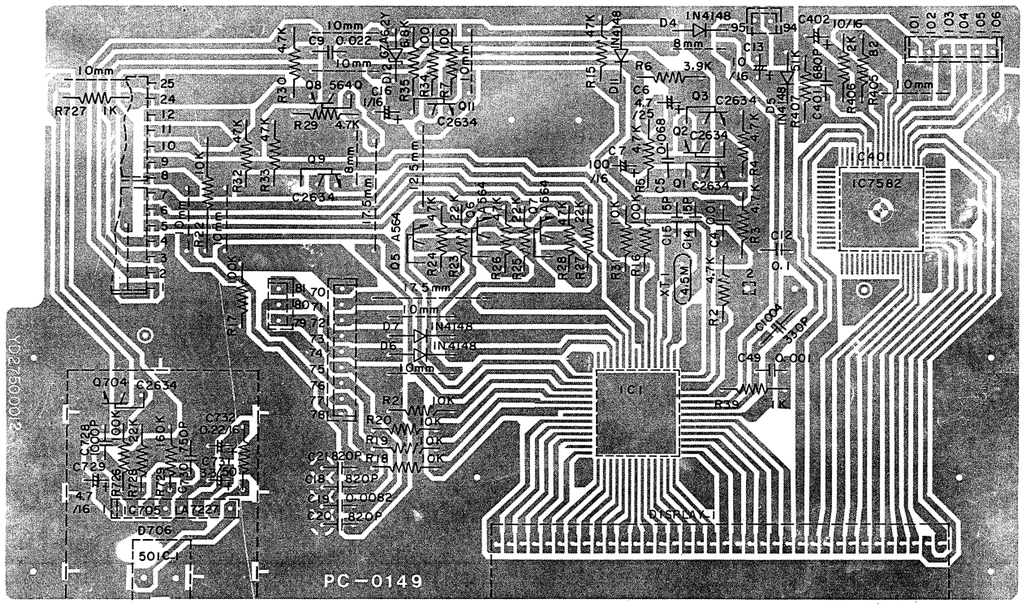
Grundplatine

Main P.C.B.



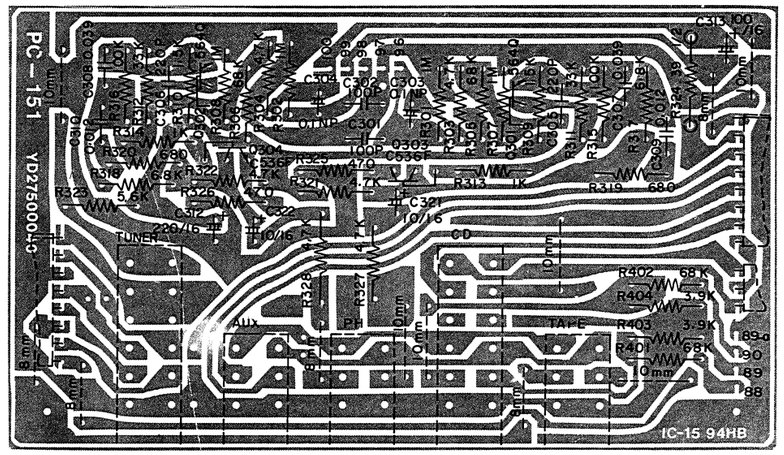
Anzeigeplatine Display

Display P.C.B.



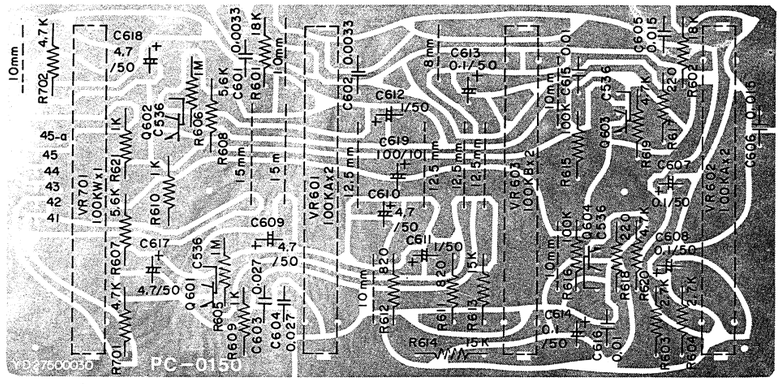
Funktionsschalterplatine

Function switch P.C.B.



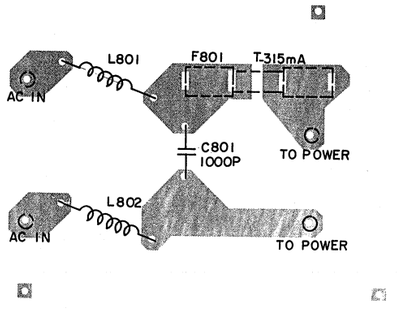
Reglerplatine

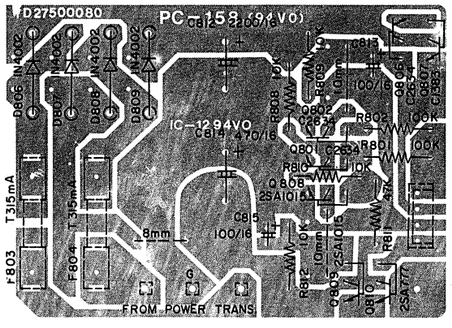
Graphic EQ P.C.B.



Netzteilplatine

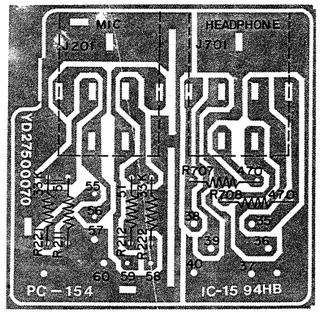
Power supply P.C.B.





Buchsenplatine KH/Mik.

Jack P.C.B. HP/Mic.

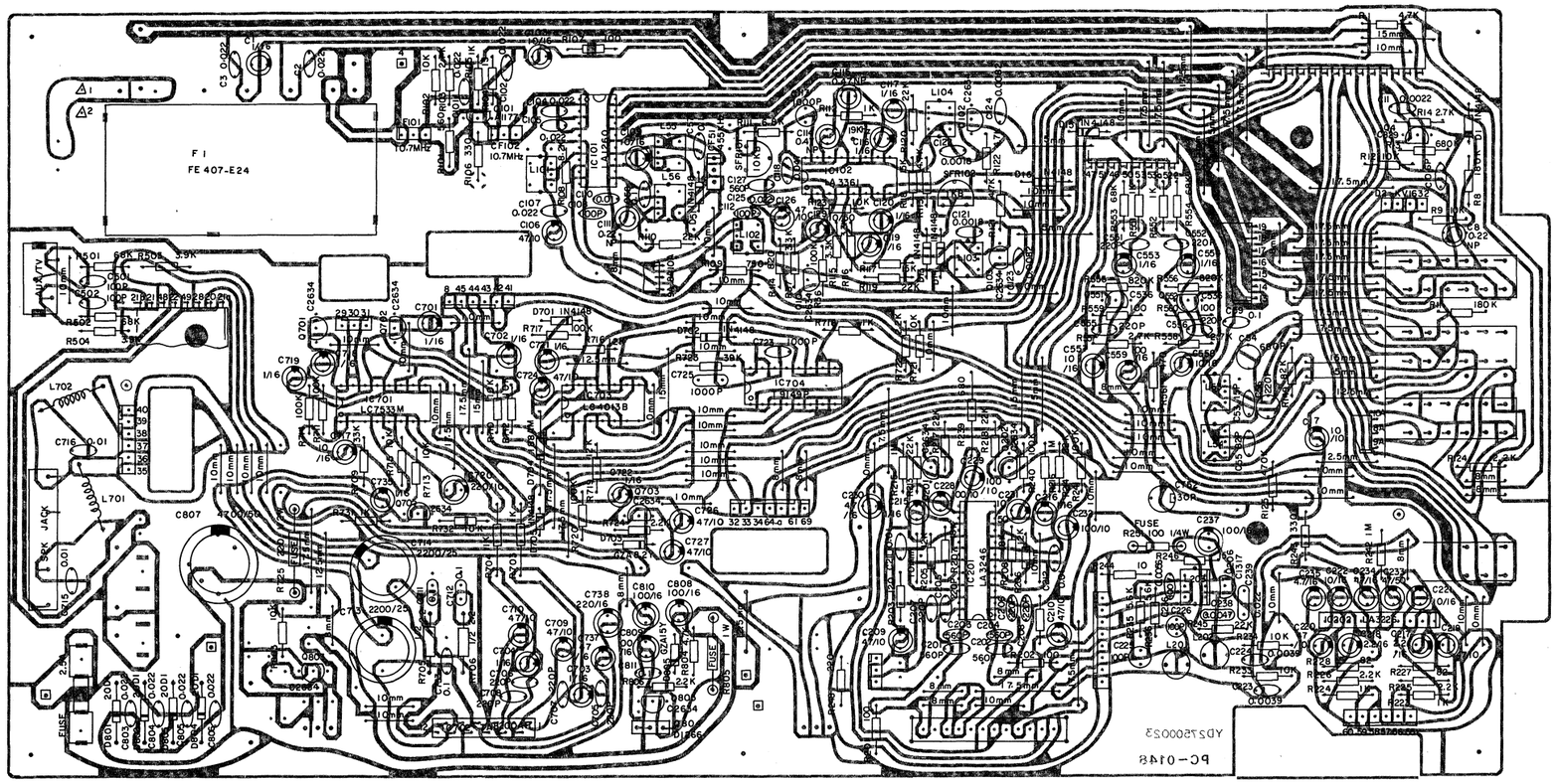


Platinendarstellung Bestückungsseite

P.C.B. diagrams Top view

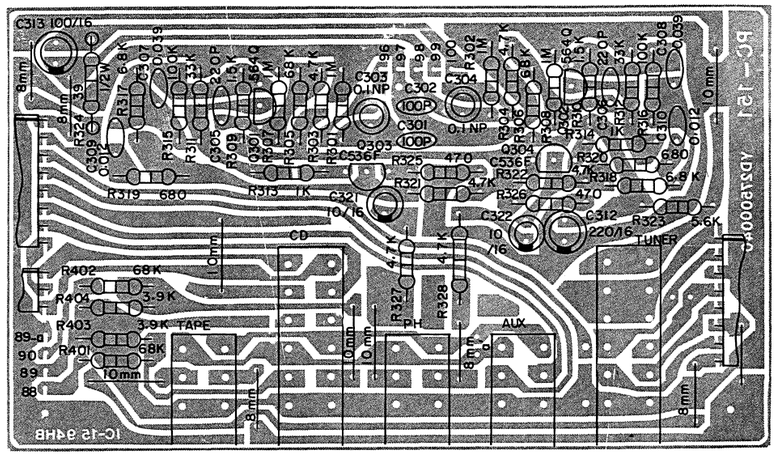
Grundplatine

Main P.C.B.



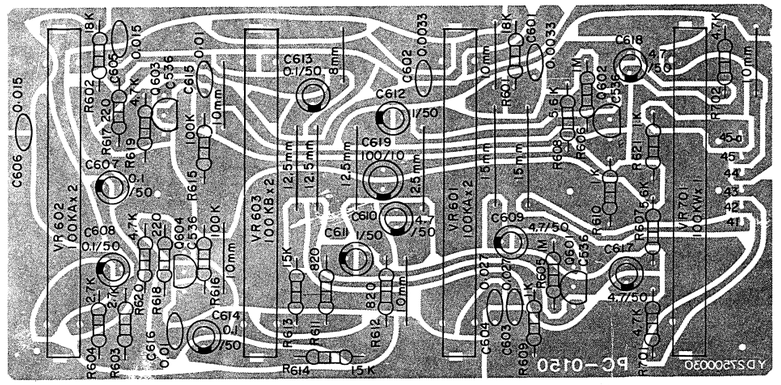
Funktionsschalterplatine

Function switch P.C.B.



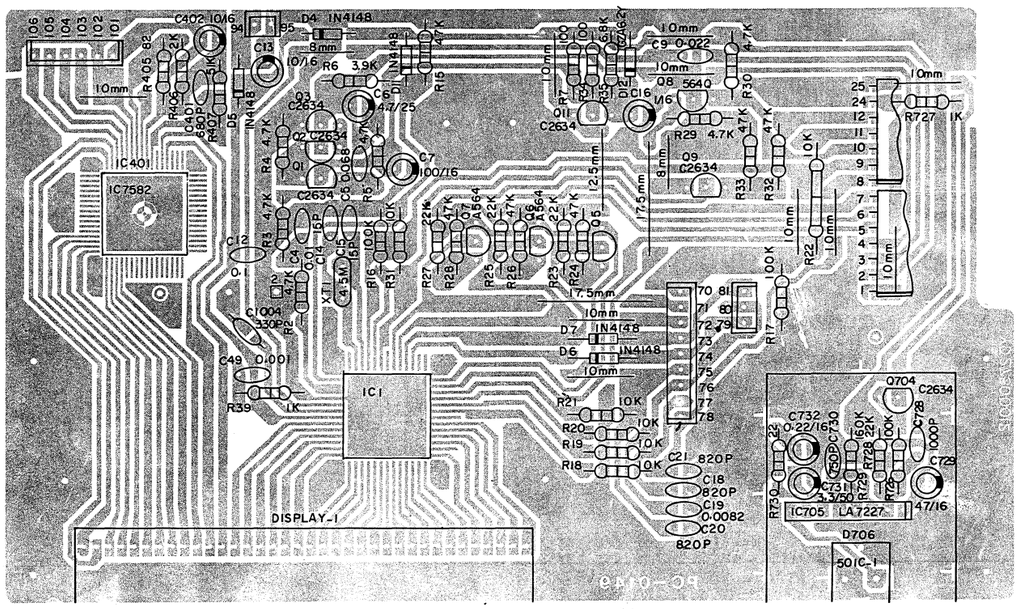
Reglerplatine

Graphic EQ P.C.B.



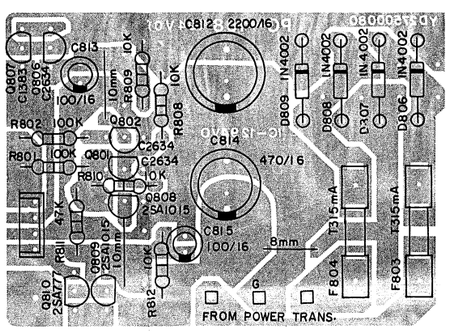
Anzeigeplatine Display

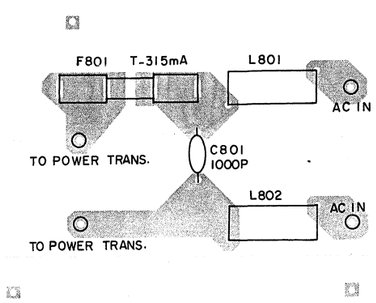
Display P.C.B.



Netzteilplatine

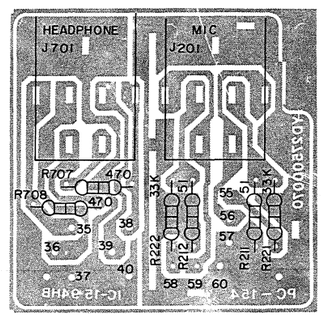
Power supply P.C.B.





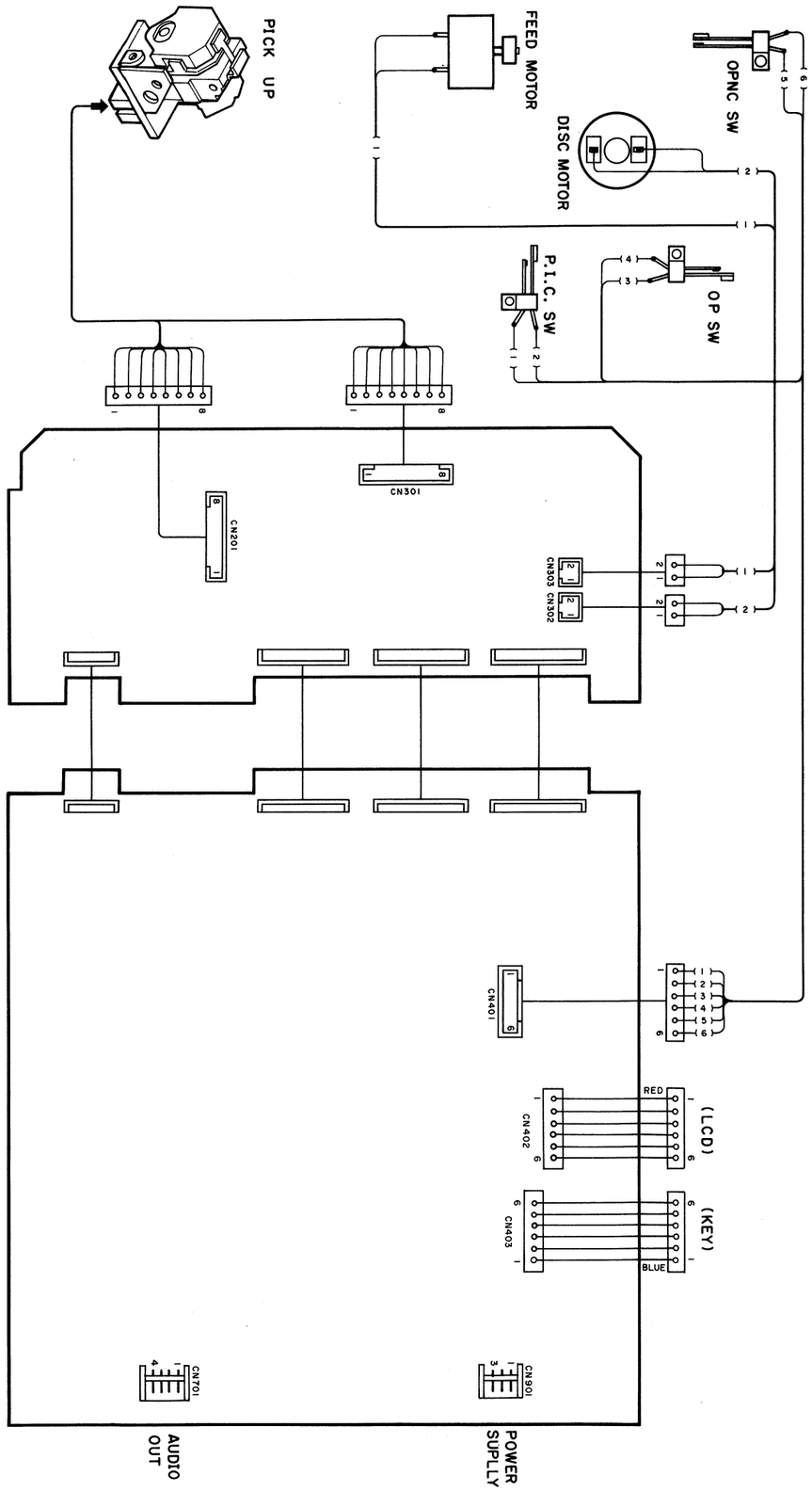
Buchsenplatine KH/Mik.

Jack P.C.B. HP/Mic.



Verdrahtungsplan CD-Player

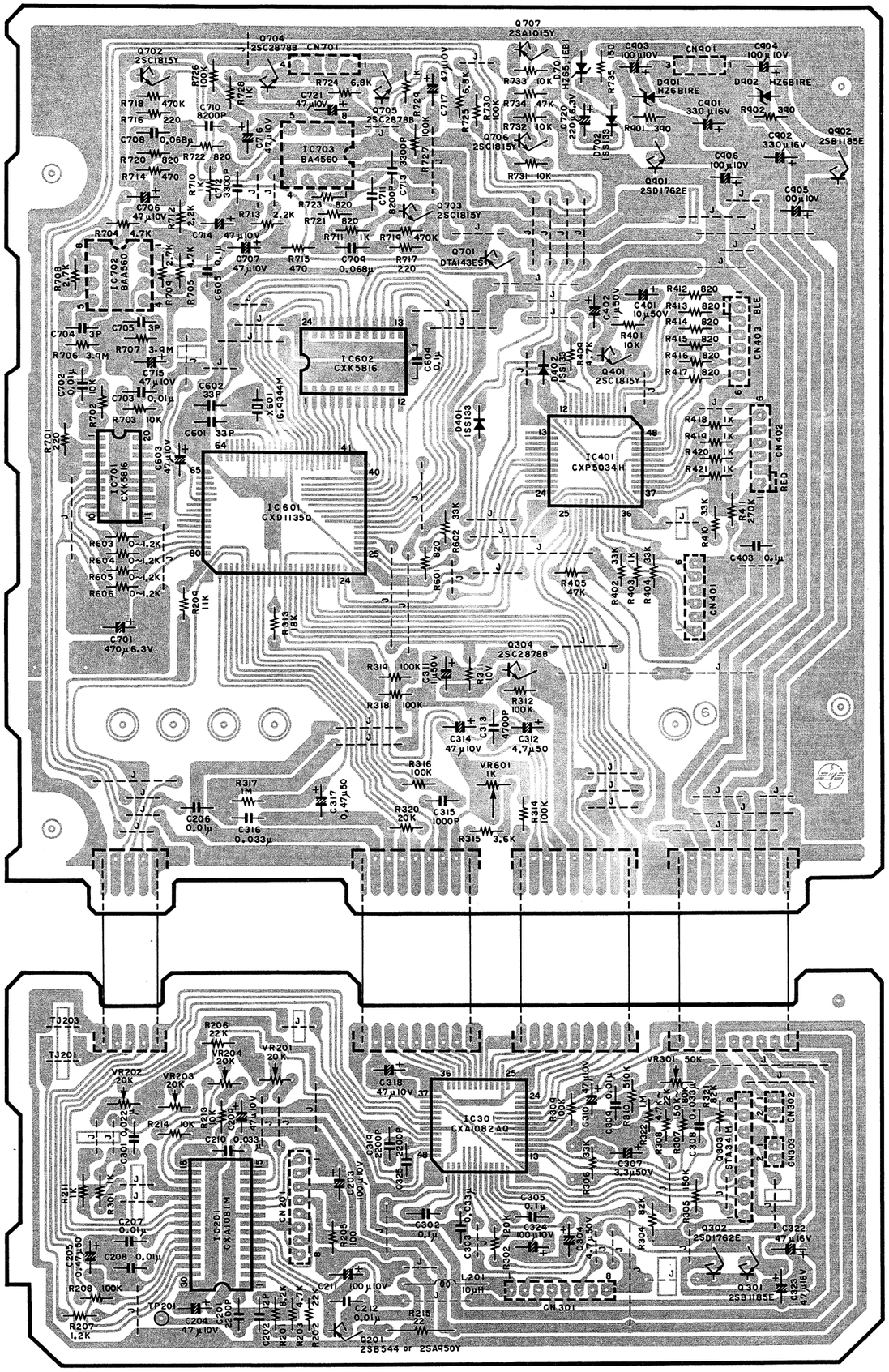
Wiring diagram CD player



Platinendarstellung CD-Player

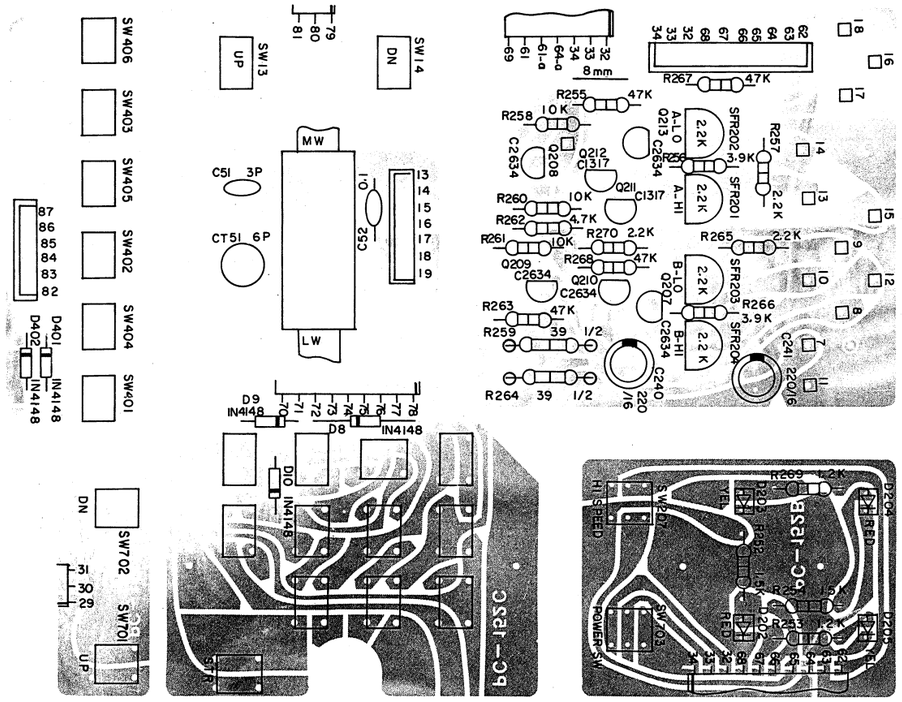
P.C.B. diagram CD player

Leiterbahnseite
Bottom view

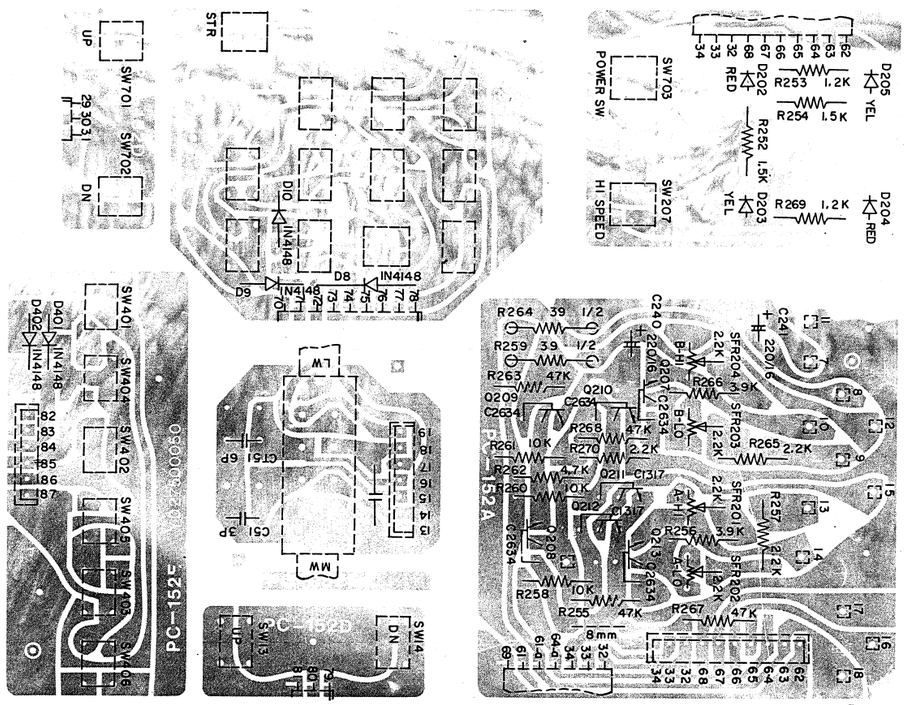


Platinendarstellungen
P.C.B. diagrams

Bestückungsseite
Top view



Leiterbahnseite
Bottom view



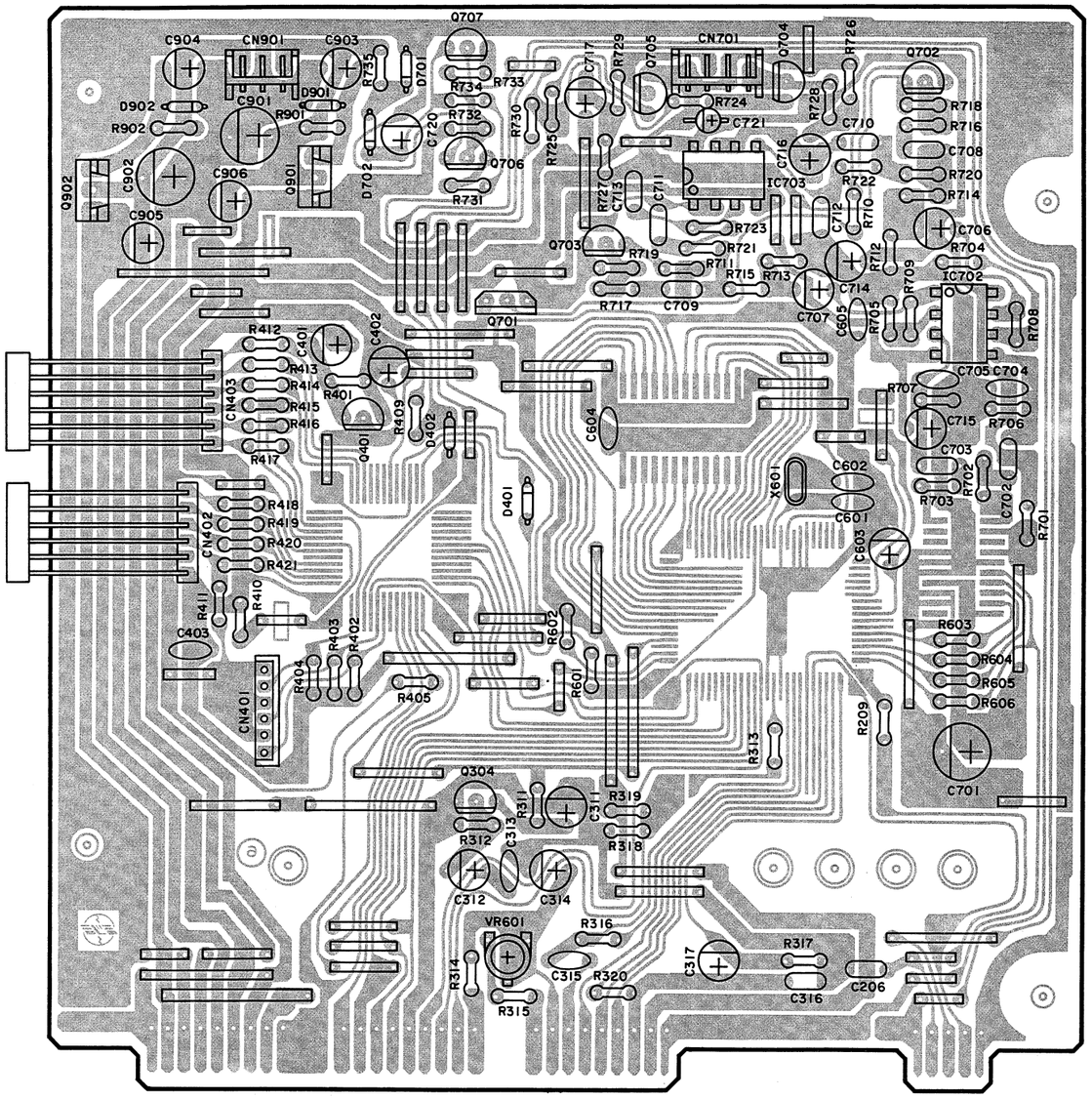
Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe
44 067 00	Grundplatine	Main P.C.B.	0148	F 9
44 068 00	Anzeigeplatine Display	Display P.C.B.	0149	E 9
44 069 00	Reglerplatine	Graphic EQ P.C.B.	0150	C 8
44 070 00	Funktionsschalterplatine	Function switch P.C.B.	0151	C 9
44 071 00	Recorderplatine	Tape control P.C.B.	152 A	C 3
44 072 00	Anzeigeplatine Recorder	Tape LED P.C.B.	152 B	C 4
44 073 00	Programmtastenplatine Tuner	Preset key P.C.B.	152 C	C 2
44 074 00	Lautstärketastenplatine	Volume up/down P.C.B.	152 D	B 5
44 075 00	Tuningtastenplatine	Tuner up/down	152 D	B 4
44 076 00	CD-Funktionstastenplatine	CD function key P.C.B.	152 E	B 6
44 077 00	Buchsenplatine KH/MIC	Jack P.C.B. Head/Mic phone	154	C 4
44 078 00	Netzteilplatine	Power supply P.C.B.	158	C 3
31 481 00	IC UPD 1708 AG-728-00	IC UPD 1708 AG-728-00	IC 1	D 2
26 797 00	IC LA 1260	IC LA 1260	IC 101	B 4
21 596 00	IC LA 3361	IC LA 3361	IC 102	B 1
40 799 00	IC LA 3246	IC LA 3246	IC 201	B 2
40 037 00	IC LA 3226 T	IC LA 3226 T	IC 202	B 2
40 771 00	IC LC 7582 B	IC LC 7582 B	IC 401	
44 079 00	IC LC 7533	IC LC 7533	IC 701	B 7
40 287 00	IC TA 8200 AH	IC TA 8200 AH	IC 702	C 3
21 330 00	IC LC 4013 B	IC LC 4013	IC 703	B 5
29 836 00	IC TC 9149 P	IC TC 9149 P	IC 704	C 3
24 533 00	Transistor 2 SC 2634 S	Transistor 2 SC 2634 S	Q 1 . . .	A 3
29 019 00	Transistor 2 SC 732 TM BL	Transistor 2 SC 732 TM BL	Q 1 . . .	A 3
32 757 00	Transistor 2 SD 1266 QR	Transistor 2 SD 1266 QR	Q 804	B 2
44 080 00	Transistor 2 SA 777 Q	Transistor 2 SA 777 Q	Q 801	A 4
37 957 00	Transistor 2 SA 1177 E	Transistor 2 SA 1177 E	Q 101	A 3
08 012 00	Transistor 2 SC 1317 R	Transistor 2 SC 1317 R	Q 206, 211, 212	A 5
12 036 00	Transistor 2 SA 564 Q/AQ/R	Transistor 2 SA 564 Q/AQ/R	Q 6–8, 301, 302	A 8
12 959 00	Transistor 2 SA 1015 Y	Transistor 2 SA 1015 Y	Q 6–8, 301, 302	A 6
13 545 00	Transistor 2 SC 536	Transistor 2 SC 536	Q 303, 304, 551, 552	A 3
12 093 00	Transistor 2 SC 1359 B	Transistor 2 SC 1359 B	Q 4	A 3
08 071 00	Transistor 2 SC 829 B	Transistor 2 SC 829 B	Q 4	A 5
03 713 00	Transistor 2 SC 1383	Transistor 2 SC 1383	Q 807	A 7
11 241 00	Diode 4148	Diodes 4148	D 1 . . .	A 2
40 288 00	Diode KV 1236 Z	Diodes KV 1236 Z	D 2	B 7
21 350 00	Zenerdiode GZA 6,2 Y	Zenerdiodes GZA 6,2 Y	D 12	A 3
44 081 00	Leuchtdiode LED LN 250 RPH	LED LN 250 RPH	D 202, 204	A 3
44 082 00	Leuchtdiode LED LN 450 YPH	LED LN 450 YPH	D 203, 205	A 3
13 557 00	Zenerdiode GZA 8,2 Y	Zenerdiodes GZA 8,2 Y	D 703	A 2
44 083 00	Photodiode SPS 501 C-1	Photodiodes SPS 501 C-1	D 706	B 1
32 931 00	Gleichrichter 20D1 FD	Rectifier 20D1 FD	D 801–804	A 2
21 413 00	Zenerdiode GZA 15 Y	Zenerdiodes GZA 15 Y	D 805	A 2
11 239 00	Diode 1 N 4002	Diodes 1 N 4002	D 806–809	A 1
31 482 00	Quarz 4,5 MHz	Crystal 4,5 MHz	XT 1	A 8
12 110 00	Keramikfilter SFE 10,7	Ceramicfilter SFE 10,7	CF 101, 102	A 6
21 797 00	AM Keramikfilter SFU 455 B	AM Ceramicfilter SFU 455 B	CF 51	A 5
44 084 00	MW Oszillatorspule	MW Oscillator coil	L 53	A 5
44 163 00	LW Oszillatorspule	LW Oscillator coil	L 54	A 5
34 321 00	AM IFT (A)	AM IFT (A)	L 55	A 4
34 322 00	AM IFT (B)	AM IFT (B)	L 56	A 4
40 293 00	FM DET Spule	FM DET coil	L 101	A 4
24 372 00	Spule	Coil	L 102	A 6
34 323 00	Spule 39 mH	Coil 39 mH	L 103, 104	B 1
34 326 00	Oszillator Spule	Oscillator coil	L 201, 202	A 4
34 325 00	Oszillator Spule	Oscillator coil	L 203	A 5
34 324 00	Filter	Filter line	L 701, 702, 801, 802	A 1
44 085 00	Ferritantenne kpl. mit Platine	Wave magnet assembly with P.C.B.	152 F	B 7
44 086 00	Trimmerkondensator VTC 51A 144A 6pF	Trimming capacitor VTC 51A 144A 6pF	CT 51	A 4
24 377 00	Trimmerkondensator VTC 51F 133A 30pF	Trimming capacitor VTC 51F 133A 30pF	CT 52	A 3
06 419 00	Sicherheitswiderstand ¼ Watt 100 Ohm	Fuse resistor ¼ Watt 100 Ohm	R 251	A 6
31 345 00	Sicherheitswiderstand ½ Watt 15 Ohm	Fuse resistor ½ Watt 15 Ohm	R 259	A 1
34 335 00	Sicherheitswiderstand ½ Watt 39 Ohm	Fuse resistor ½ Watt 39 Ohm	R 264, 324	A 1
31 823 00	Sicherheitswiderstand ½ Watt 220 Ohm	Fuse resistor ½ Watt 220 Ohm	R 725	A 7
40 296 00	Sicherheitswiderstand 1 Watt 1 Ohm	Fuse resistor 1 Watt 1 Ohm	R 805	A 3
40 804 00	Schieberegler EQ 100 Hz/10 kHz	Slide resistor EQ 100 Hz/10 kHz	VR 601, 602	A 9
40 806 00	Schieberegler EQ 1 kHz	Slide resistor EQ 1 kHz	VR 603	A 9
40 805 00	Schieberegler Balance 100 kW	Slide resistor balance 100 kW	VR 701	A 9
29 651 00	Tastschalter	Push switch	SW 1 . . .	A 3
44 087 00	Tastensatz 4fach LW, MW, FM, Stereo	Key set 4-switch LW, MW, FM, Stereo	SW 51	C 2
44 088 00	Tastensatz 5fach Betriebsart	Key set 5-switch function	SW 52	C 2
34 033 00	A/W-Schalter	Record/Playback switch	SW 201	A 8
29 747 00	Taste High Speed	Push switch High Speed	SW 207	B 1
44 089 00	Netzschalter	Power switch	SW 703	B 0
44 090 00	Display	Display	DI 1	D 3
44 091 00	Lampe 6 V/50 mA	Lamp 6 V/50 mA	PL 801	A 5
40 306 00-3504	Tuner FE 407-924	Tuner FE 407-924	F 1	D 6
44 092 00	Netztrafo	Power transformer	T 801	D 2
31 529 00	Batterie 1,5 V	Battery 1.5 V	Program	A 6
13 653 00	Antennenbuchse	Antenna jack		B 0
32 952 00	Chinch-Buchse AUX	Chinch jack AUX	J 501	A 6
40 031 00	Lautsprecherbuchse DJ 224	Speaker jack	J 701	A 8
13 986 00	Mikrofon-/Kopfhörerbuchse	Mic/Headphone jack	2/701	B 0

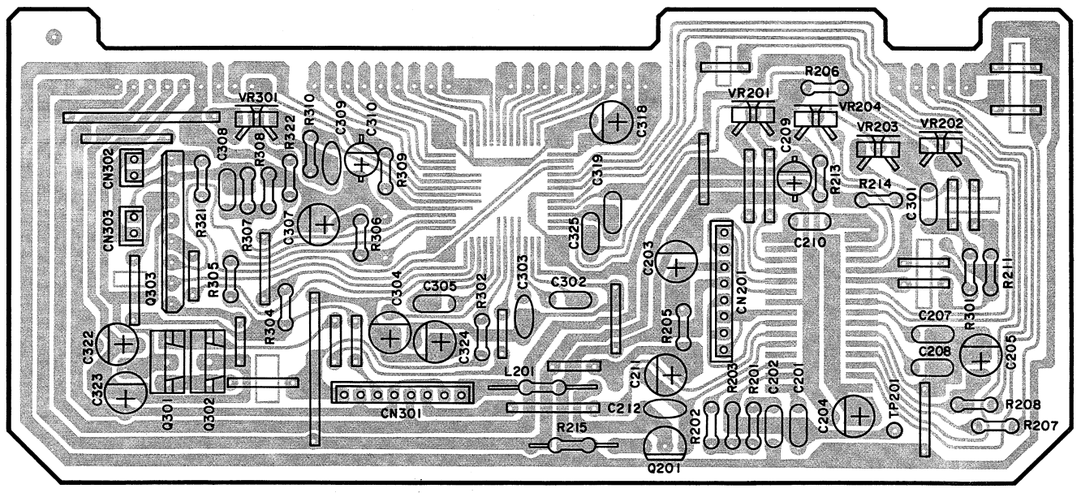
Platinendarstellung CD-Player

P.C.B. diagram CD player

Bestückungsseite

Top view





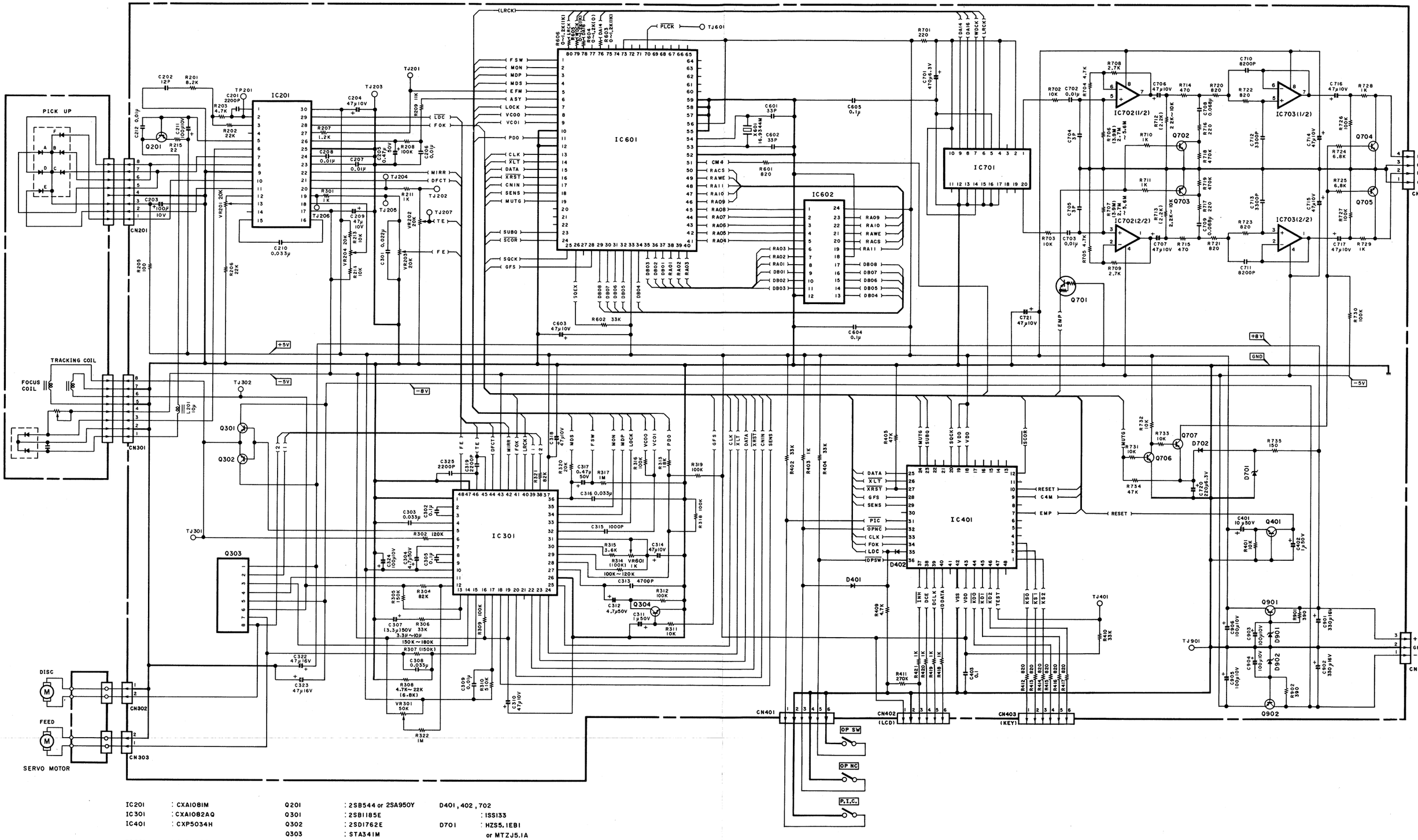
Ersatzteilliste CD-Player

Spare parts list CD player

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe
44 099 00	**CD Player kpl. CPMC-KG 001**	**CD player assy CPMC-KG 001**	A 27	G 2
44 100 00	Platine CD MTM 26HB groß	P.C.B. CD MTM 26HB large	59	
44 101 00	Platine CD MTM 26HB klein	P.C.B. CD MTM 26 HB small	59	
40 757 00	IC CXA 1081 M	IC CXA 1081 M	IC 201	B 3
40 758 00	IC CXA 1082 AQ	IC CXA 1082 AQ	IC 301	C 5
44 093 00	IC CXP 5034 H	IC CXP 5034 H	IC 401	
40 761 00	IC CXD 1135 Q	IC CXD 1135 Q	IC 601	D 4
44 094 00	IC CXK 5816	IC CXK 5816	IC 602	
44 095 00	IC LC 7880 M	IC LC 7880 M	IC 701	
40 765 00	IC BA 4560	IC BA 4560	IC 702, 703	A 6
44 096 00	Transistor 2 SB 544 F o. 2 SA 950Y	Transistor 2 SB 544 F o. 2 SA 950Y	Q 201	
40 766 00	Transistor 2 SB 1185 E	Transistor 2 SB 1185 E	Q 301, 902	A 8
40 767 00	Transistor 2 SD 1762 E	Transistor 2 SD 1762 E	Q 302, 901	A 7
40 768 00	Transistor STA 341 M	Transistor STA 341 M	Q 303	B 4
34 691 00	Transistor 2 SC 2878 B	Transistor 2 SC 2878 B	Q 304, 704, 705	A 3
26 134 06	Transistor 2 SC 1815 Y	Transistor 2 SC 1815 Y	Q 401, 702, 703, 706	A 2
40 368 00	Transistor DTA 143 ES	Transistor DTA 143 ES	Q 701	A 2
12 959 00	Transistor 2 SA 1015 Y	Transistor 2 SA 1015 Y	Q 707	A 6
24 750 00	Diode 1 SS 133-S	Diodes 1 SS 133-S	D 401, 402, 702	A 2
06 872 00	Zenerdiode 5,1 Volt	Zenerdiodes 5.1 Volt	D 701	A 1
06 040 00	Zenerdiode 5,6 Volt	Zenerdiodes 5.6 Volt	D 901, 902	A 2
44 097 00	Trimmpoti 20 kOhm	Trimming poti 20 kOhm	VR 201–204	
44 098 00	Trimmpoti 50 kOhm	Trimming poti 50 kOhm	VR 301	
29 623 00	Trimmpoti 1 kOhm	Trimming poti 1 kOhm	VR 601	A 3
37 031 00	Drossel LAP 10 µH	Inductor LAP 10 µH	L 201	A 2
40 769 00	Quarz 16,9344 MHz	Crystal 16.9344 MHz	X 601	B 2

Schaltbild CD-player

Circuit diagram CD player



IC201	: CXA1081M	Q201	: 2SB544 or 2SA950Y	D401, 402, 702	: 1SS133
IC301	: CXA1082AQ	Q301	: 2SB1185E	D701	: HZS5.1EB1 or MTZJ5.1A
IC401	: CXP5034H	Q302	: 2SD1762E	D901, 902	: MZ6B1RE or MTZJ5.6B
IC601	: CXD1135Q	Q303	: STA341M		
IC602	: CXK5816	Q304, 704, 705	: 2SC2878B		
IC701	: LC7880M	Q401, 702, 703, 706	: 2SC1815Y		
IC702, 703	: BA4560	Q701	: DTA143ES		
		Q707	: 2SA1015Y		
		Q901	: 2SD1762E		
		Q902	: 2SB1185E		

IC 201

Pin No.	1	2	3	4	5	6	7	8	9	10
DC	0	0.01	0	4.63	4.68	−5.0	0	0	0	0
Pin No.	11	12	13	14	15	16	17	18	19	20
DC	0	0	0	−0.03	−1.07	1.12	−5.0	0.04	0.02	0
Pin No.	21	22	23	24	25	26	27	28	29	30
DC	−4.39	0	−3.37	0	0	2.51	2.37	0.10	4.16	5.0

IC 301

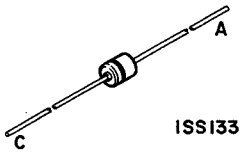
Pin No.	1	2	3	4	5	6	7	8	9	10
DC	0	−0.01	0	−0.01	−0.60	0	0.65	0	0	5.0
Pin No.	11	12	13	14	15	16	17	18	19	20
DC	−0.58	0	0	0.62	0	−4.96	−4.08	0.10	−5.01	0.10
Pin No.	21	22	23	24	25	26	27	28	29	30
DC	NC	4.97	0	5.0	5.0	0	2.67	2.67	2.26	2.31
Pin No.	31	32	33	34	35	36	37	38	39	40
DC	3.53	2.34	0.01	0.01	0.01	0.01	5.0	−0.01	−0.49	2.50
Pin No.	41	42	43	44	45	46	47	48		
DC	0.10	0	−5.01	−4.39	0	0	0	0.01		

IC 401

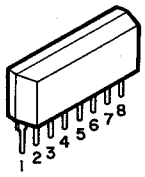
Pin No.	1	2	3	4	5	6	7	8	9	10
DC	5.0	5.0	5.0	NC	NC	NC	0	NC	2.42	3.16
Pin No.	11	12	13	14	15	16	17	18	19	20
DC	NC	0	NC	NC	NC	NC	NC	5.0	5.0	5.0
Pin No.	21	22	23	24	25	26	27	28	29	30
DC	NC	NC	0	4.87	0	5.0	4.97	0	0.09	NC
Pin No.	31	32	33	34	35	36	37	38	39	40
DC	4.98	0	5.0	0.10	4.74	4.99	5.0	5.0	0	0
Pin No.	41	42	43	44	45	46	47	48		
DC	NC	0	5.0	5.0	5.0	5.0	5.0	5.0		

IC-, Transistor-Spannungstabellen und -Blockschaltbilder

IC, Transistor voltage chart and block diagrams

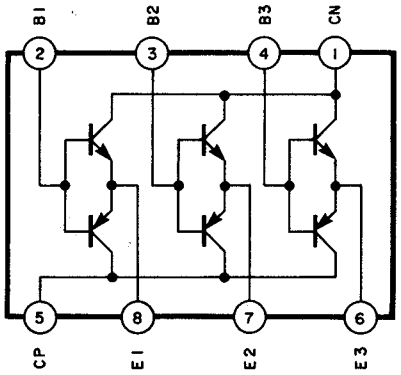


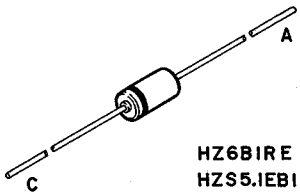
ISS133 D401,402,702



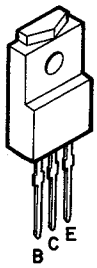
STA341M Q303

Q303 STA341M

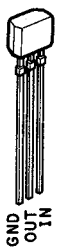




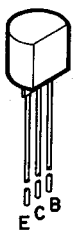
HZ6B1RE D401,402
HZS5.1EB1 D701



2SD1762 Q302,901
2SB1185 Q301,902



DTA134ES Q701



2SC2878 Q304,704,705
2SA1015 Q707
2SC1815 Q401,702,703,706

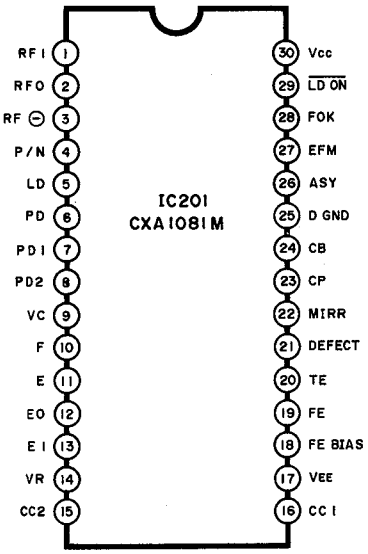
DC \ Pin No.	E	C	B
Q201	4.99	1.02	4.62
Q301	−0.04	−8.0	−0.60
Q302	−0.04	+8.03	−0.60
Q304	0	0	0.01
Q401	0	3.26	0
Q702	0	0	0
Q703	0	0	0
Q704	0	0	0.70

DC \ Pin No.	E	C	B
Q705	0	0	0.71
Q706	0	0.02	0.67
Q707	4.26	4.24	3.59
Q901	5.0	8.03	5.61
Q902	−5.02	−8.0	−5.63

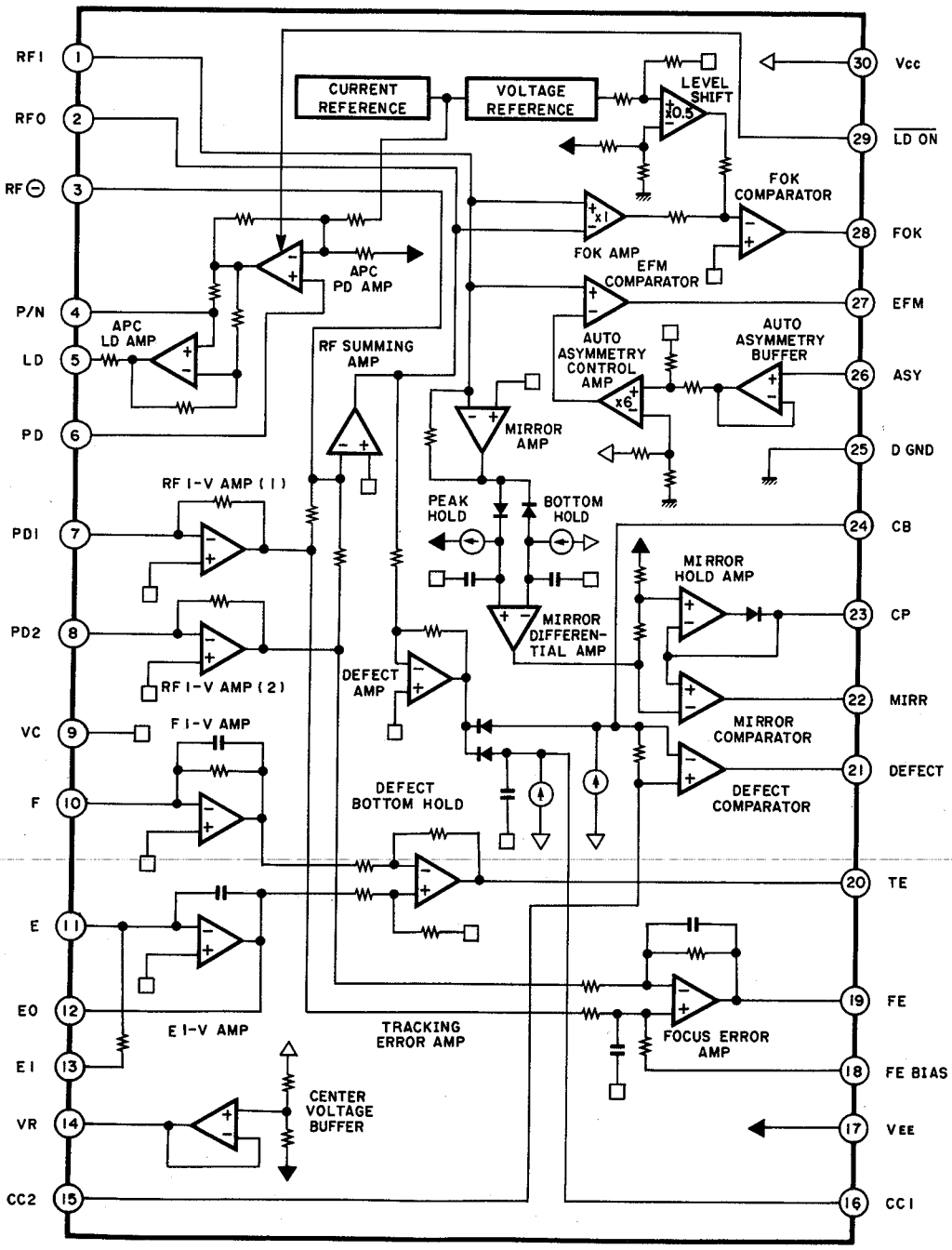
DC \ Pin No.	IN	GND	OUT
Q701	0	0	0

Q303

Pin No.	1	2	3	4	5	6	7	8
DC	8.03	−0.49	0.63	−0.58	−8.01	−0.02	0.05	0



IC201 CXA1081M



IC 601

Pin No.	1	2	3	4	5	6	7	8	9	10
DC	0	0	0	0	2.38	2.51	0	2.48	2.47	0
Pin No.	11	12	13	14	15	16	17	18	19	20
DC	2.52	0	4.99	4.99	0	4.96	0.09	0.09	4.87	NC
Pin No.	21	22	23	24	25	26	27	28	29	30
DC	NC	NC	0	0	4.99	4.98	NC	0	2.65	2.79
Pin No.	31	32	33	34	35	36	37	38	39	40
DC	2.41	1.96	5.0	2.05	0.80	4.28	2.37	2.49	2.49	2.49
Pin No.	41	42	43	44	45	46	47	48	49	50
DC	2.49	2.49	2.49	2.49	2.49	2.50	2.50	2.50	4.36	2.28
Pin No.	51	52	53	54	55	56	57	58	59	60
DC	2.36	0	2.42	2.38	0	5.0	0	0	0	NC
Pin No.	61	62	63	64	65	66	67	68	69	70
DC	NC	NC	NC	NC	NC	NC	NC	NC	NC	2.38
Pin No.	71	72	73	74	75	76	77	78	79	80
DC	NC	NC	5.00	NC	NC	2.37	NC	0	2.49	2.50

IC 602

Pin No.	1	2	3	4	5	6	7	8	9	10
DC	2.49	2.49	2.49	2.49	2.49	2.49	2.49	2.49	2.37	4.28
Pin No.	11	12	13	14	15	16	17	18	19	20
DC	0.80	0	2.05	1.96	2.41	2.79	2.65	0	2.50	2.28
Pin No.	21	22	23	24						
DC	4.36	2.50	2.50	5.0						

IC 701

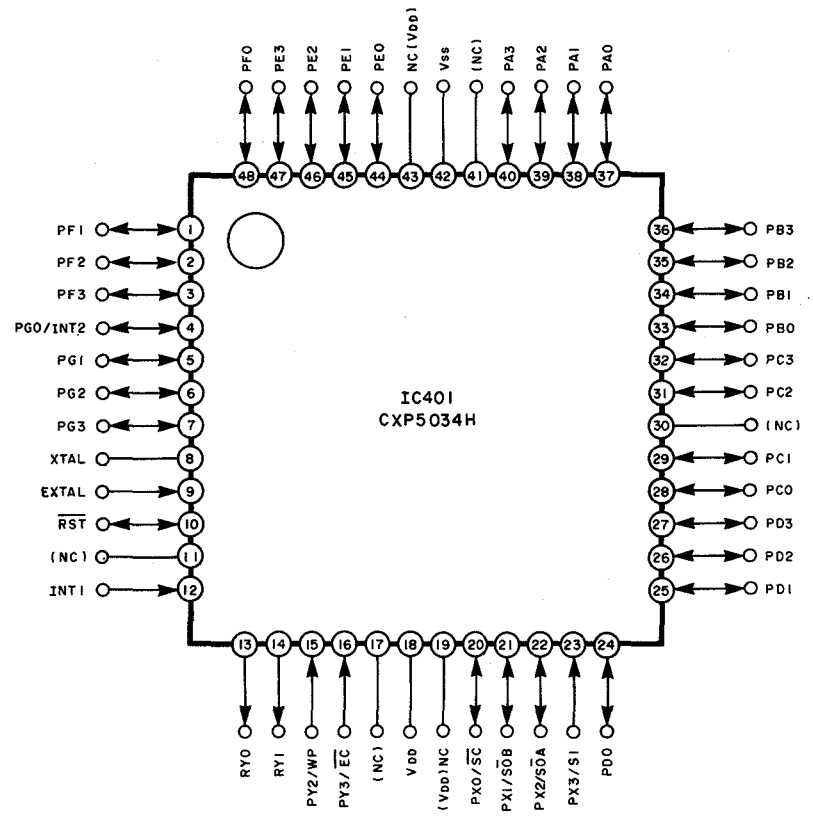
Pin No.	1	2	3	4	5	6	7	8	9	10
DC	2.27	4.55	NC	4.55	0	2.50	2.50	0	2.42	4.54
Pin No.	11	12	13	14	15	16	17	18	19	20
DC	NC	0	0	4.55	0	0	0	NC	NC	2.27

IC 702

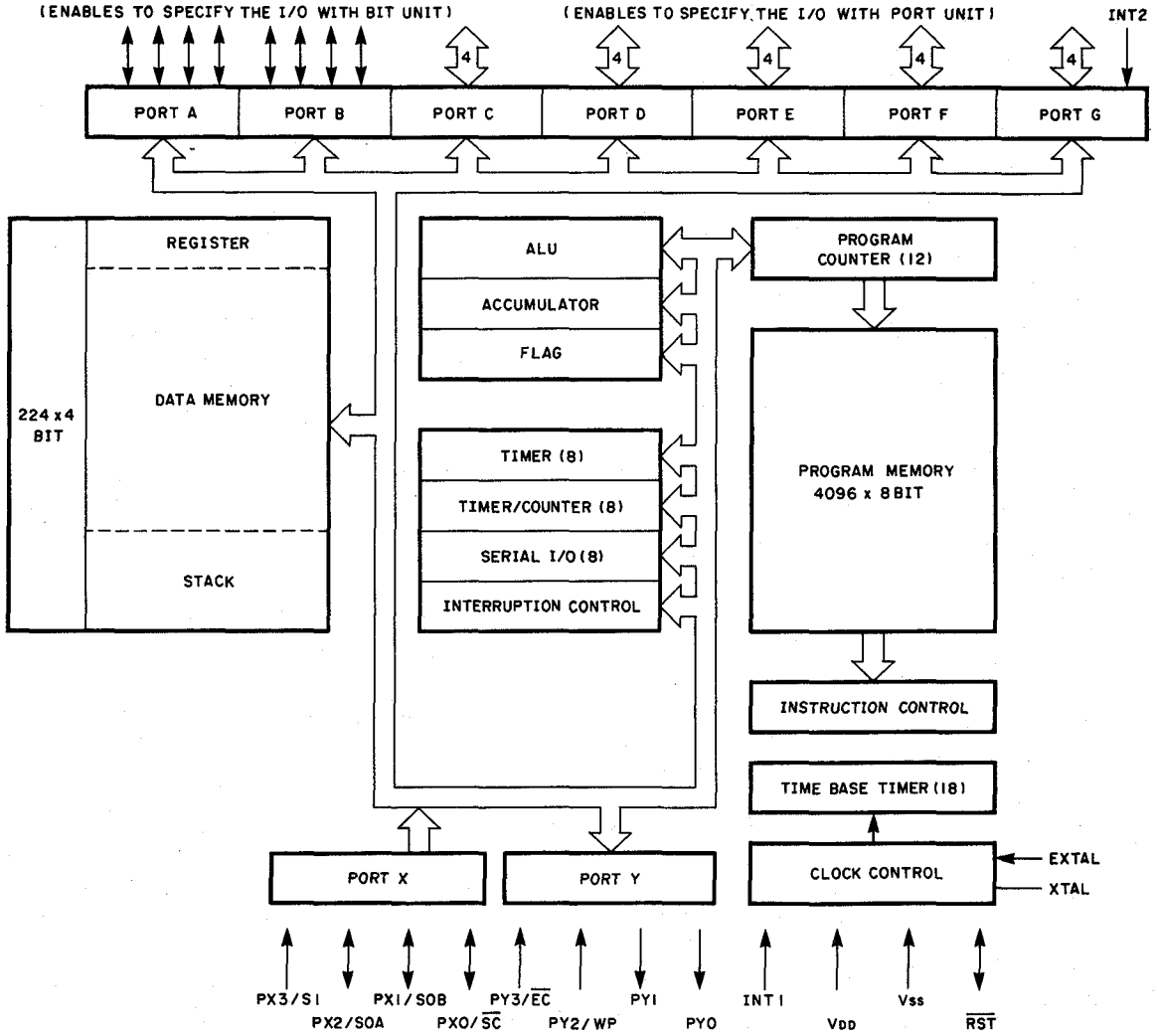
Pin No.	1	2	3	4	5	6	7	8		
DC	0.38	0.24	0.16	−5.01	0.15	0.24	0.37	5.0		

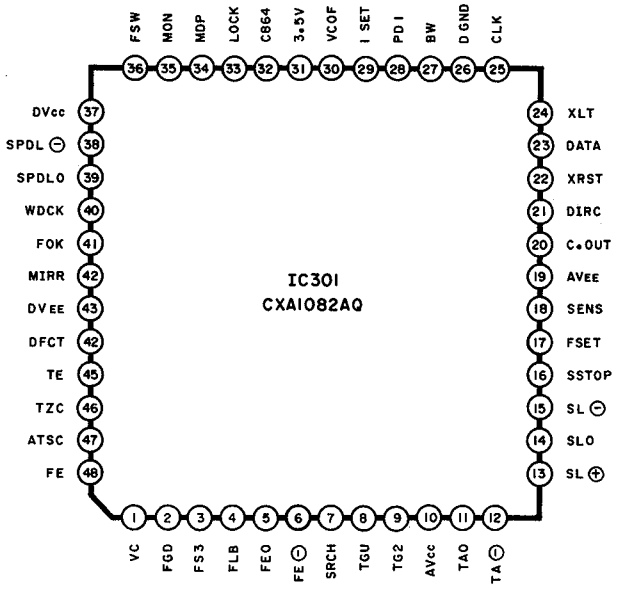
IC 703

Pin No.	1	2	3	4	5	6	7	8		
DC	0	0	0	−5.01	0	0	0	5.0		

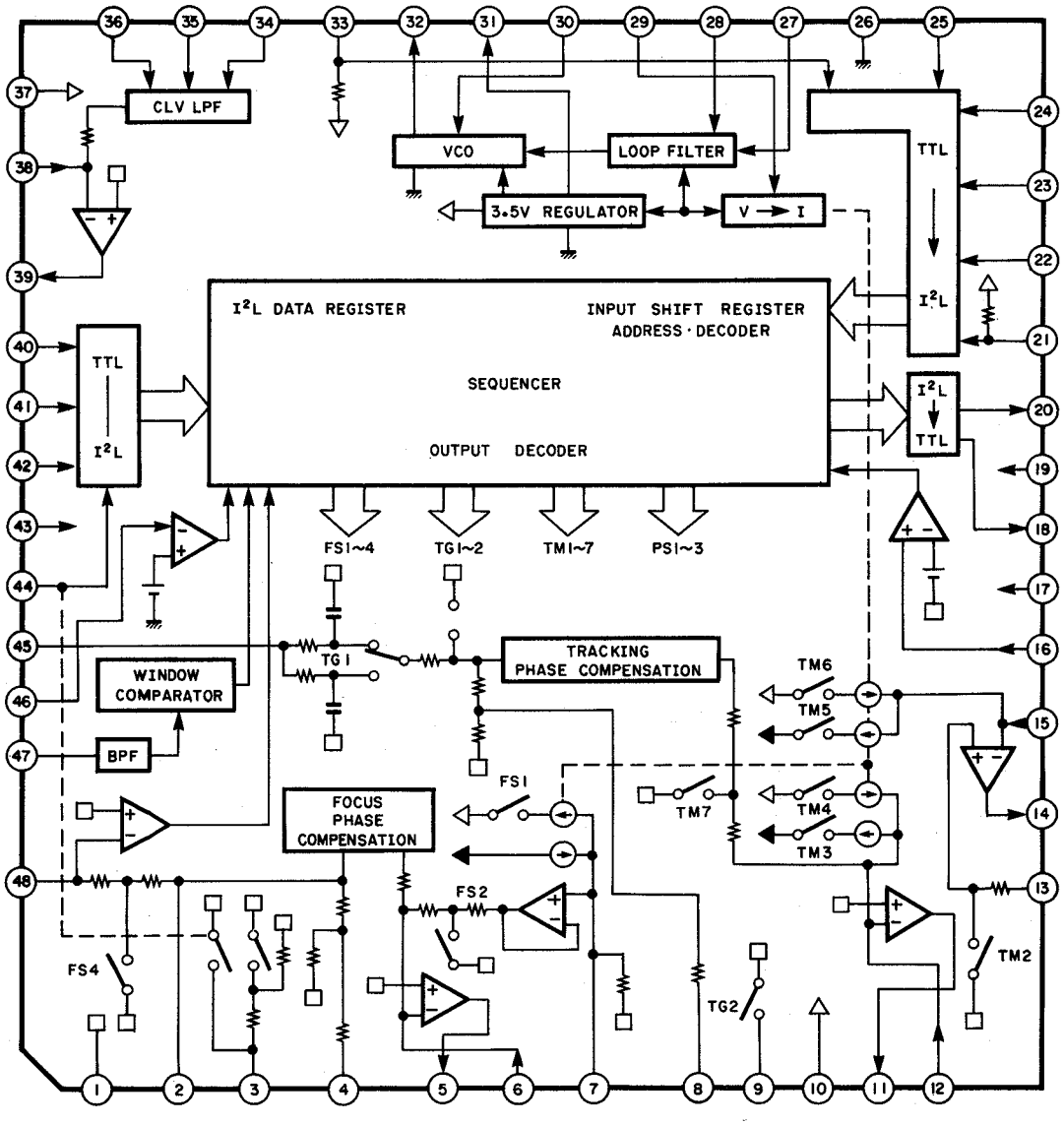


IC401 CXP5034H

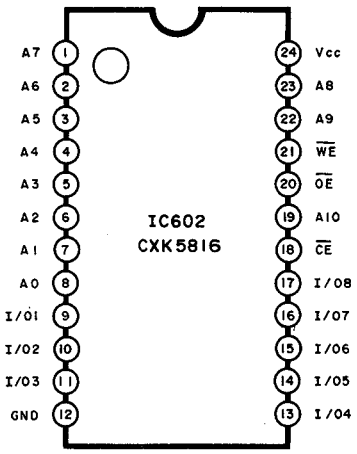


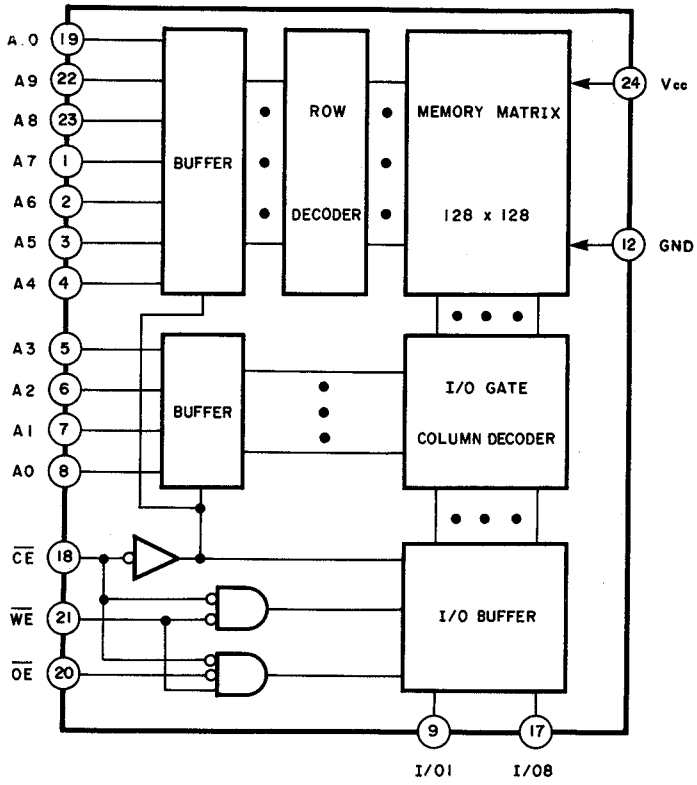


IC301 CXA1082AQ

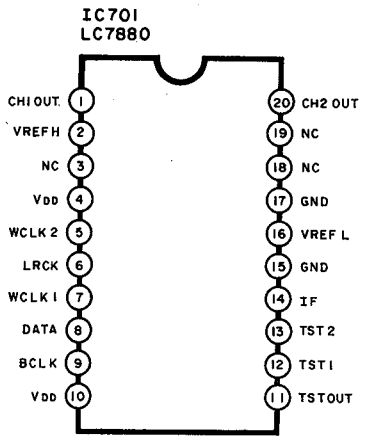


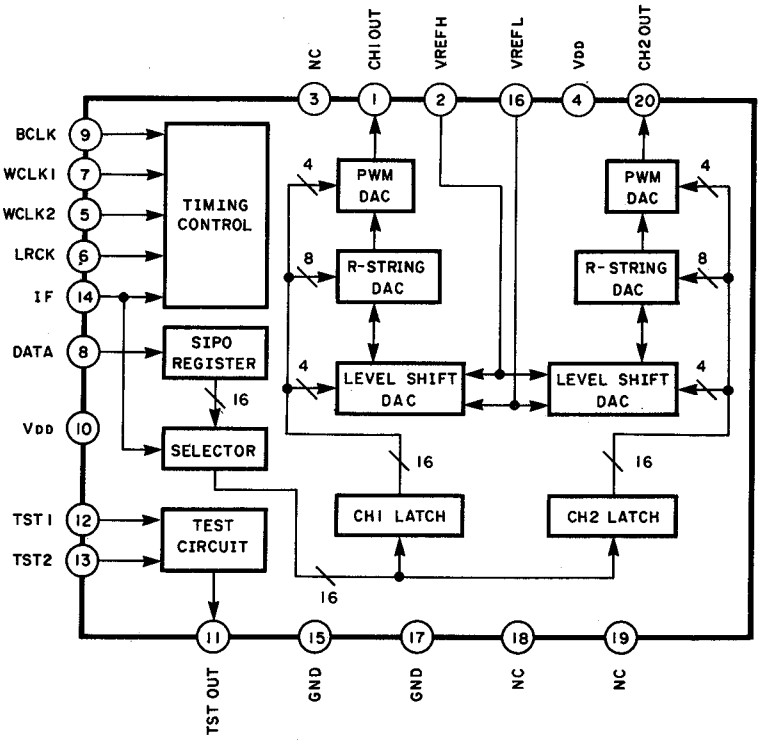
IC602 CXK5816M



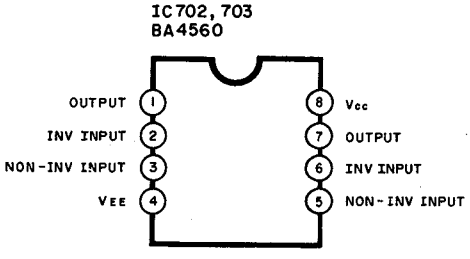


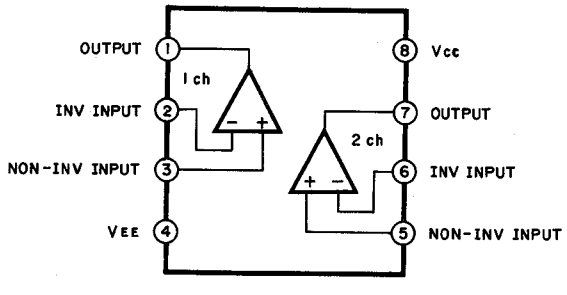
IC701 LC7880

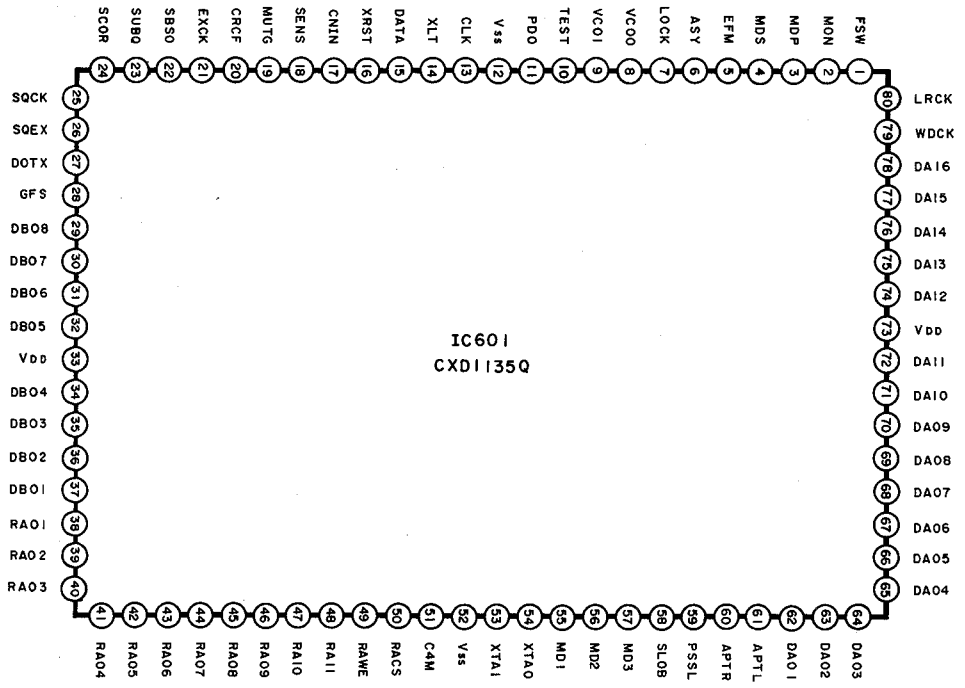




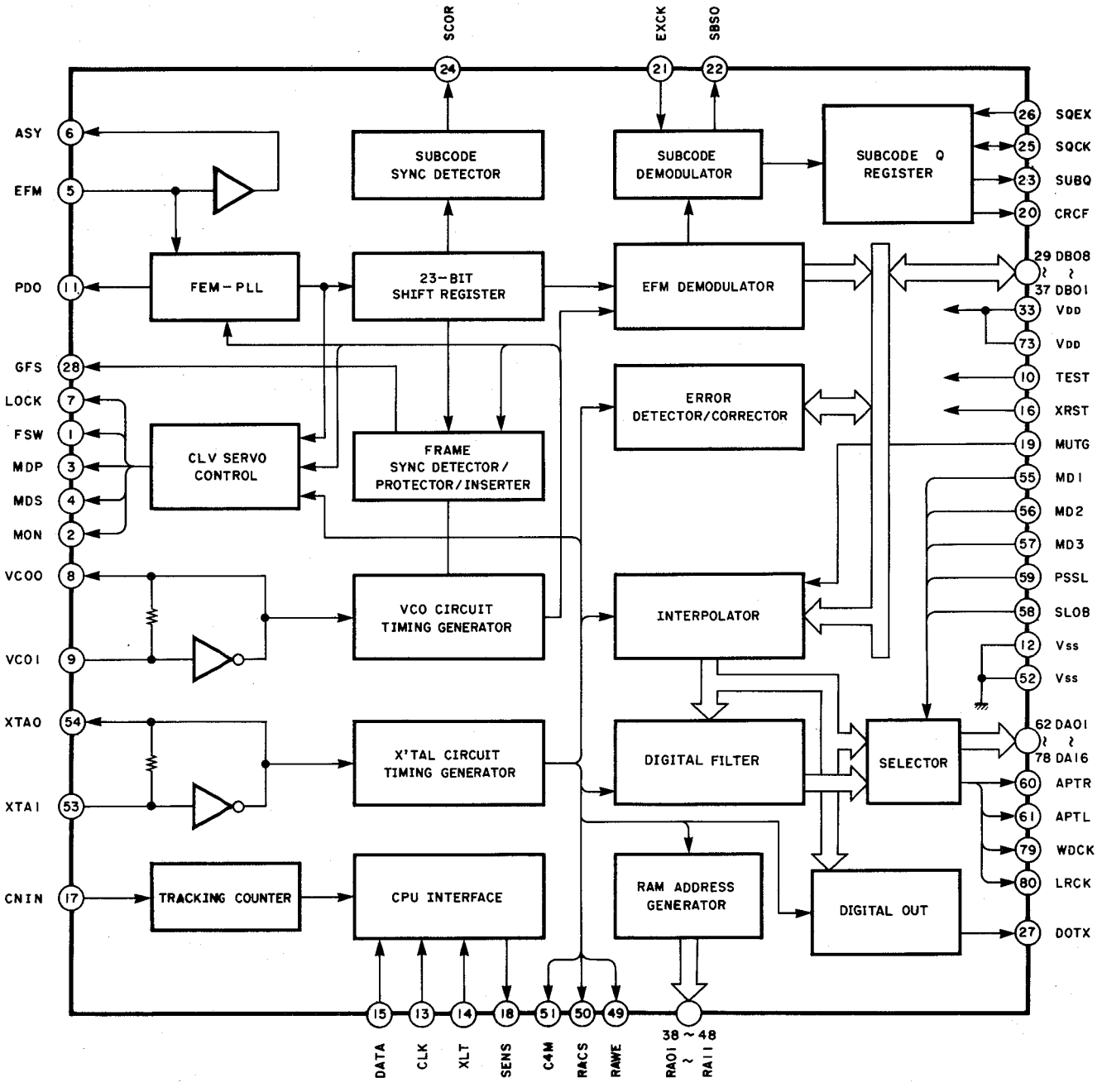
IC702, 703 BA4560







IC601 CXD1135Q



Austausch des Laserabtasters

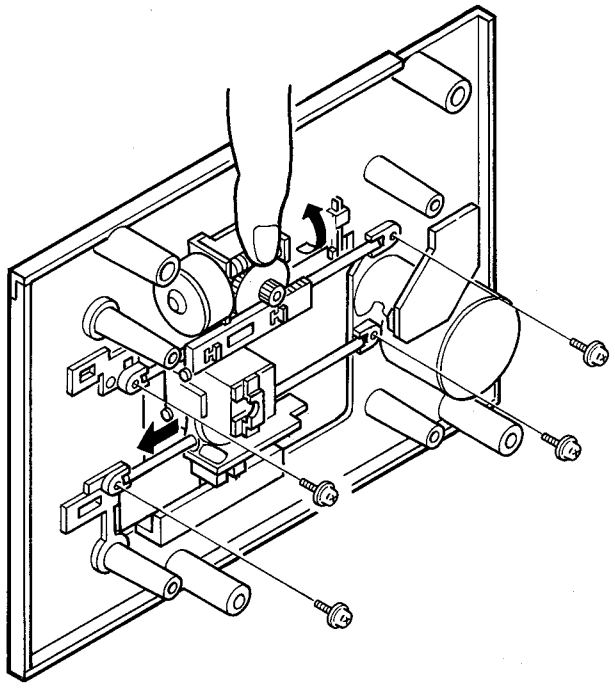
Vor Durchführung dieses Arbeitsganges die Warnhinweise in der Wartungsanleitung (Vorsichtsmaßnahmen gegen elektrostatischen Durchbruch) durchlesen und bei den Arbeiten genau einhalten.

(1) Mechanismus auf Schneckenrad so lange drehen, bis sich der Laserabtaster am linken Anschlag befindet, und dann die vier Befestigungsschrauben der Vorschubwelle lösen.

Pickup replacement procedure

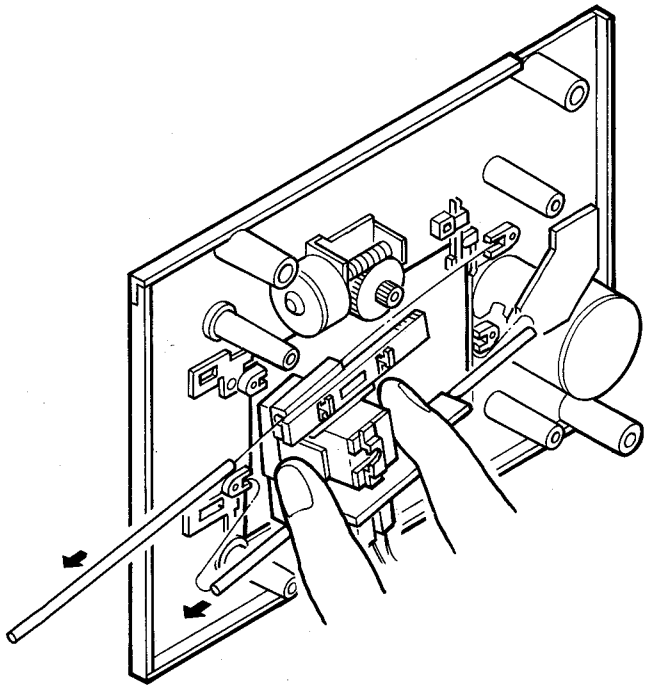
Before performing this operation, read the precautions in the service note (Precautions against electrostatic breakdown) and observe them strictly.

(1) Place the Mechanism Assembly upside down, move the worm gear toward the pickup's outer circumference, and then remove the four screws holding the feed shaft.



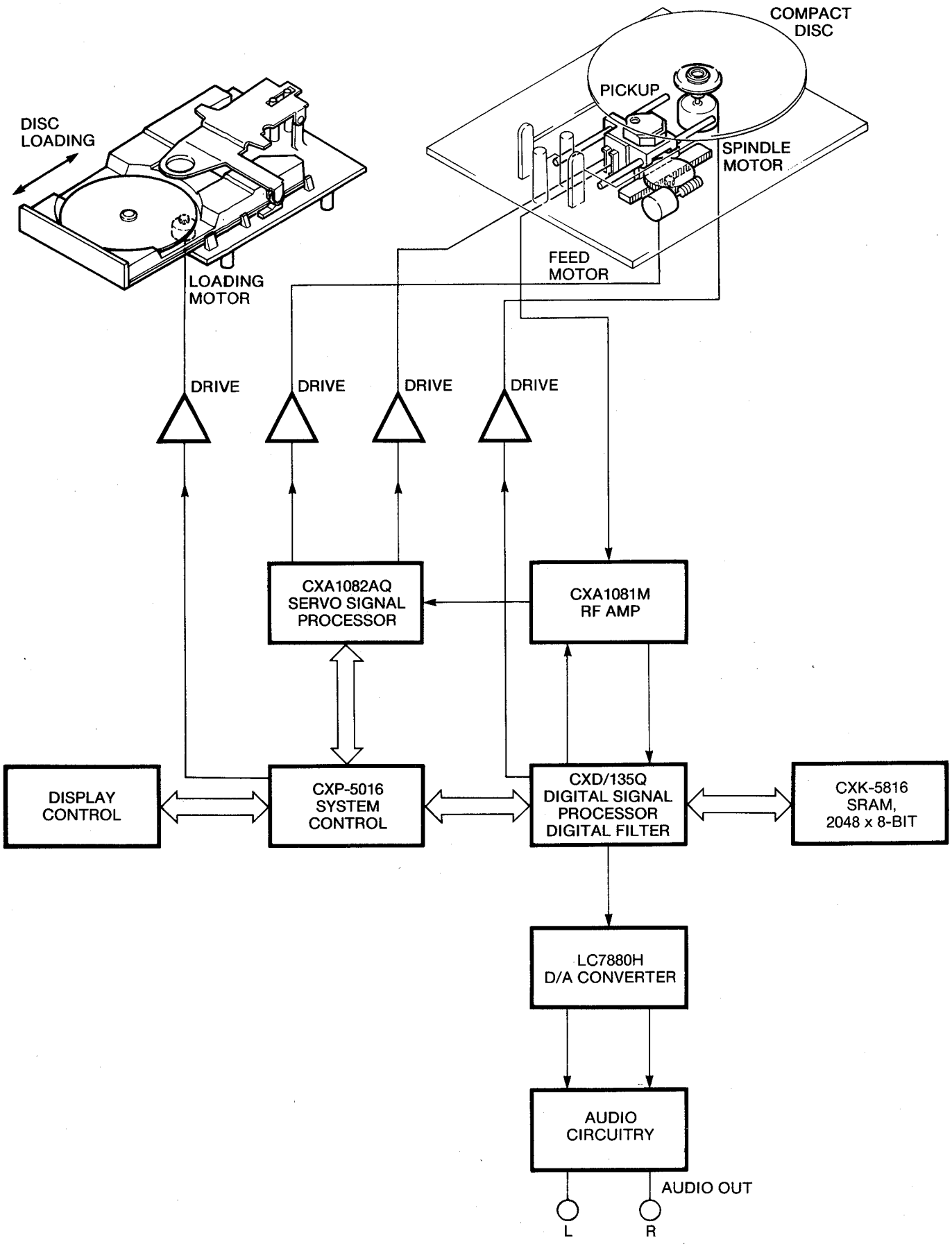
(2) Vorschubwelle und Laserabtaster gemeinsam abnehmen, dann die Vorschubwelle vom Tonabnehmer trennen.

(2) Remove the feed shaft and pickup together, then separate the feed shaft from the pickup.

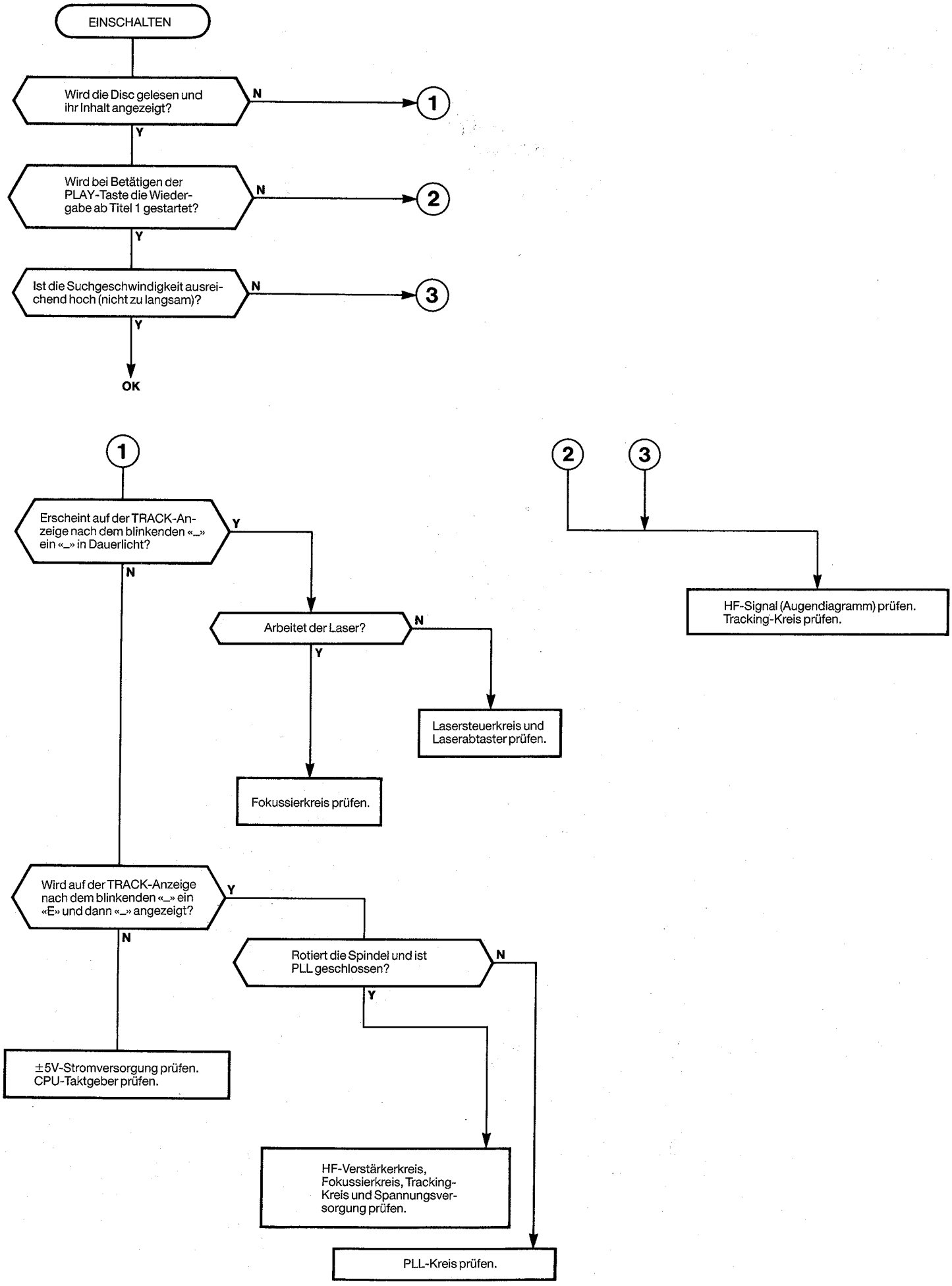


Blockdiagramm CD-Player

Block diagram CD player



Fehlersuchdiagramm

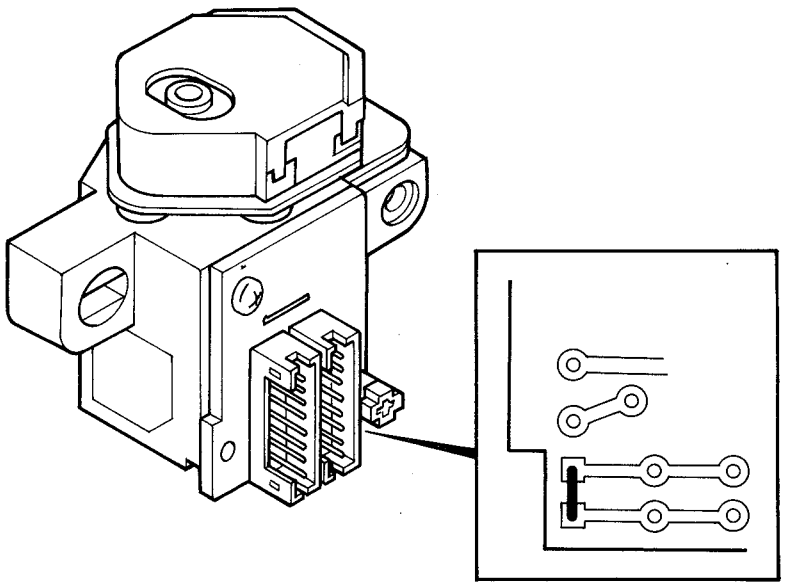


(3) Tonabnehmer wieder einbauen

Laserabtaster und Mechanismus sind wartungsfrei. Die Hauptplatine muß jedoch abgeglichen werden (siehe Abgleichanweisung). Beim Anschluß des neuen Laserabtasters an die Hauptplatine (CN201 und CN301) muß die Kurzschlußverbindung an der Tonabnehmerplatine mit einem Lötkolben getrennt werden. Diese Kurzschlußverbindung dient zum Schutz der Laserdiode. Beim Ausbau der Hauptplatine und des kompletten Mechanismus muß hier unbedingt eine Kurzschlußverbindung hergestellt werden.

(3) Replace the pickup.

(The pickup and mechanism are adjustment-free. However, the Main PCB must be adjusted (refer to the description of Electrical Adjustment Procedures). When connecting the new pickup to the Main PCB (CN201 and CN301), open the shorting connection on the pickup's PCB with a soldering iron. The shorting connection is provided to protect the laser diode. Be sure to short-circuit this connection when removing the Main PCB and Mechanism Ass'y.



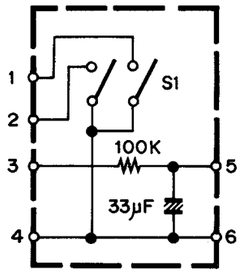
Abgleichanweisung

■ Benötigte Meßinstrumente und -Platten

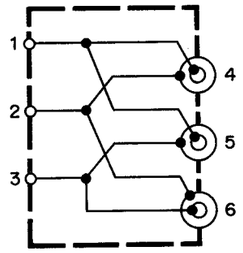
(1) Frequenzzähler × 1
(2) Sonde × 1
(3) Millivolt-/Ampèremeter × 1
(4) Oszilloskop × 1
(5) Frequenzgang-analysator × 1
(6) Jitter-Meßgerät × 1
(7) Spezial-Testschaltung (A und B) × 2

(8) Verwendete Platte:
1) EIAJ-Standard-testplatte EIAJ CD-1
2) Philips-Testmuster NR5A
3) A-BEX Model SCD-1432 Testplatte SCD-1432

<Spezial-Testschaltungen>



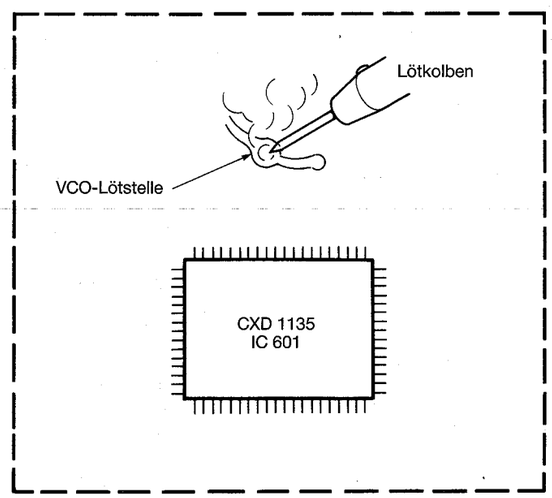
(A)

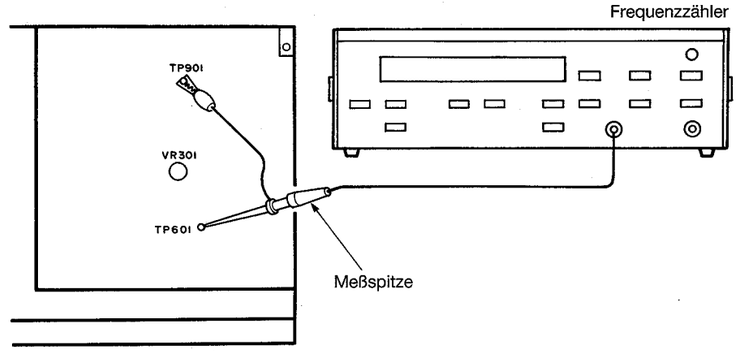


(B)

■ VCO einstellen

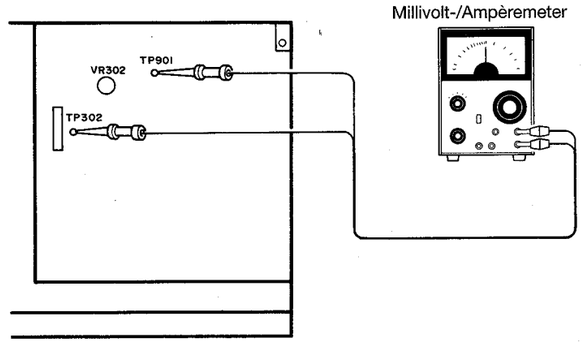
(1) Externen Stromanschluß am Anschlußstecker CN901 abziehen und die Befestigungsschrauben der Hauptplatine entfernen.
(2) VCO-Lötstelle auf der Hauptplatine öffnen.
(3) Hauptplatine wieder in ihre ursprüngliche Lage bringen und den Frequenzzähler an TJ601 und TJ901 (GND) anschließen.
(4) Externen Stromanschluß an Anschlußstecker CN901 wieder anschließen und VR601 einstellen, bis am Frequenzzähler ein Anzeigewert von 4,3218 MHz ± 50 kHz (± 100 kHz) erscheint.
(5) Nach dieser Einstellung die Hauptplatine ausbauen und die VCO-Lötstelle wieder schließen.





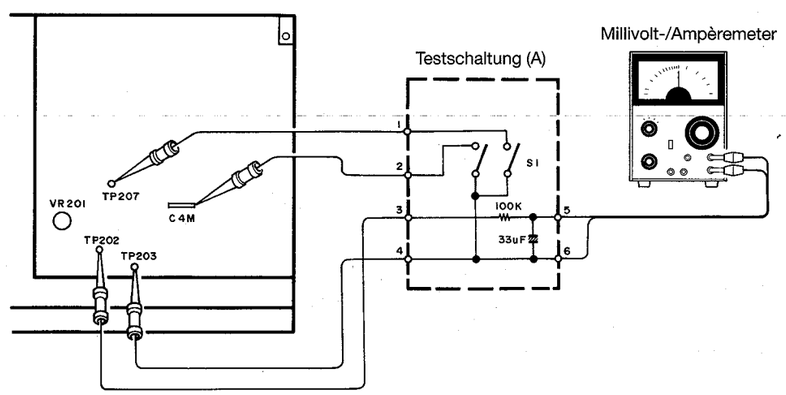
■ Tracking-Offset einstellen

(1) Externe Stromquelle an Anschlußstecker CN901 abziehen, ein Millivolt-/Ampèremeter an TJ302 und TJ901 (GND) anschließen.
(2) Eine externe Stromquelle an Anschlußstecker CN901 anschließen und VR302 einstellen, bis am Millivolt-/Ampèremeter ein Anzeigewert von 0 ±10 mV (±50 mV) erscheint.



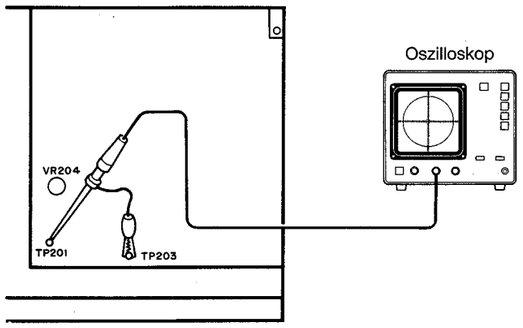
■ EF-Balance einstellen

(1) Externe Stromquelle an Anschlußstecker CN901 abziehen, die Anschlüsse 1 bis 4 der Testschaltung (A) an TJ401, TJ207, TJ202 und TJ901 anschließen und dann das Millivolt-Ampèremeter an Anschluß 5 und 6 anschließen.
(2) Externe Stromquelle an Anschlußstecker CN901 anschließen, die 180 µm Exzenterplatte (SCD-1432) einlegen und Plattentitel Nr. 6 spielen.
(3) S1 an der Testschaltung auf ON stellen und VR201 einstellen, bis am Millivolt-/Ampèremeter ein Wert von 0 ±20 mV (±50 mV) angezeigt wird.



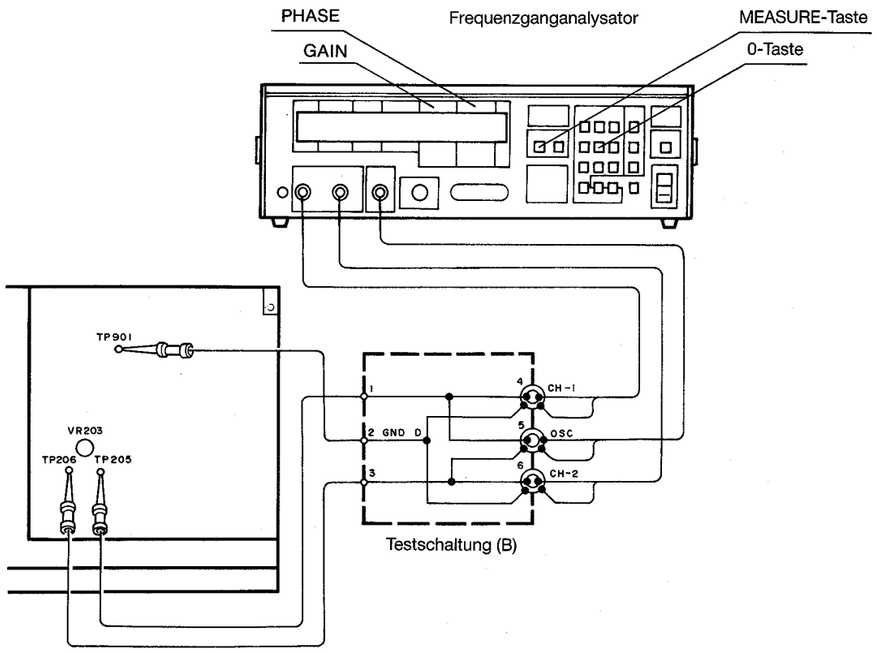
■ Jitter einstellen

(1) Externe Stromquelle an Anschlußstecker CN901 abziehen und ein Oszilloskop an TJ201 und TJ203 anschließen.
(2) Externe Stromquelle an Anschlußstecker CN901 wieder anschließen, EIAJ-Platte (CD-1) einlegen und Plattentitel Nr. 6 spielen.
(3) VR204 so einstellen, daß der Jitter am Jitter-Meßgerät einen möglichst kleinen Anzeigewert erreicht, und dabei prüfen, ob der Anzeigewert am Jitter-Meßgerät 14,5 ns nicht überschreitet.



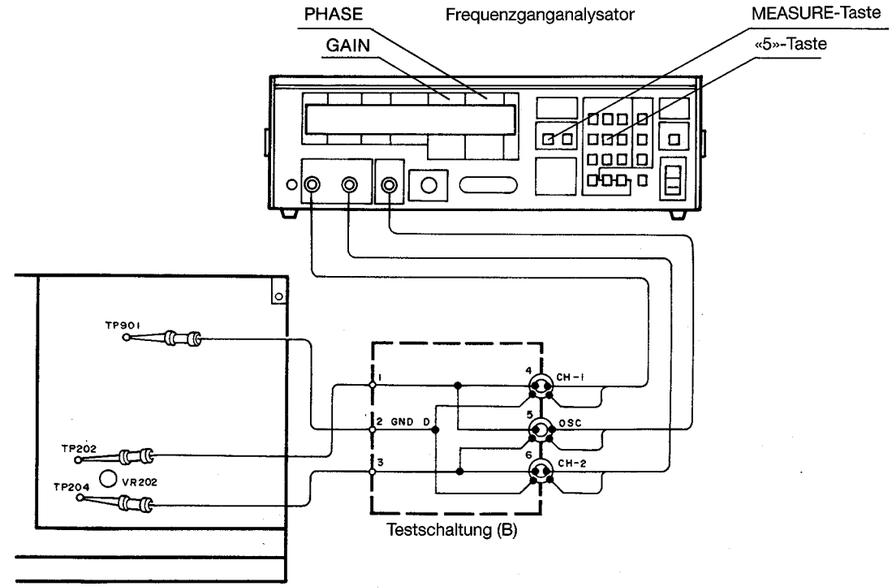
■ Fokussierverstärkung einstellen

(1) Externe Stromquelle an Anschlußstecker CN901 abziehen, die Testschaltung (B) (B) an TJ205, TJ206 und TJ901 der Hauptplatine anschließen und dann einen Frequenzganganalysator an die Schaltung anschließen.
(2) Am Frequenzganganalysator die »SPOT SELECT«-Taste 0 drücken und dann die »MEASURE«-Taste drücken.
(3) Externe Stromquelle an Anschlußstecker CN901 anschließen, EIAJ-Platte (CD-1) einlegen und Plattentitel Nr. 6 abspielen.
(4) VR203 auf eine GAIN-Anzeige von ±1,0 dB (±2,0 dB) am Frequenzganganalysator einstellen; dabei prüfen, ob die PHASE-Anzeige zwischen 35 und 55 liegt.



■ Tracking-Verstärkungsfaktor einstellen

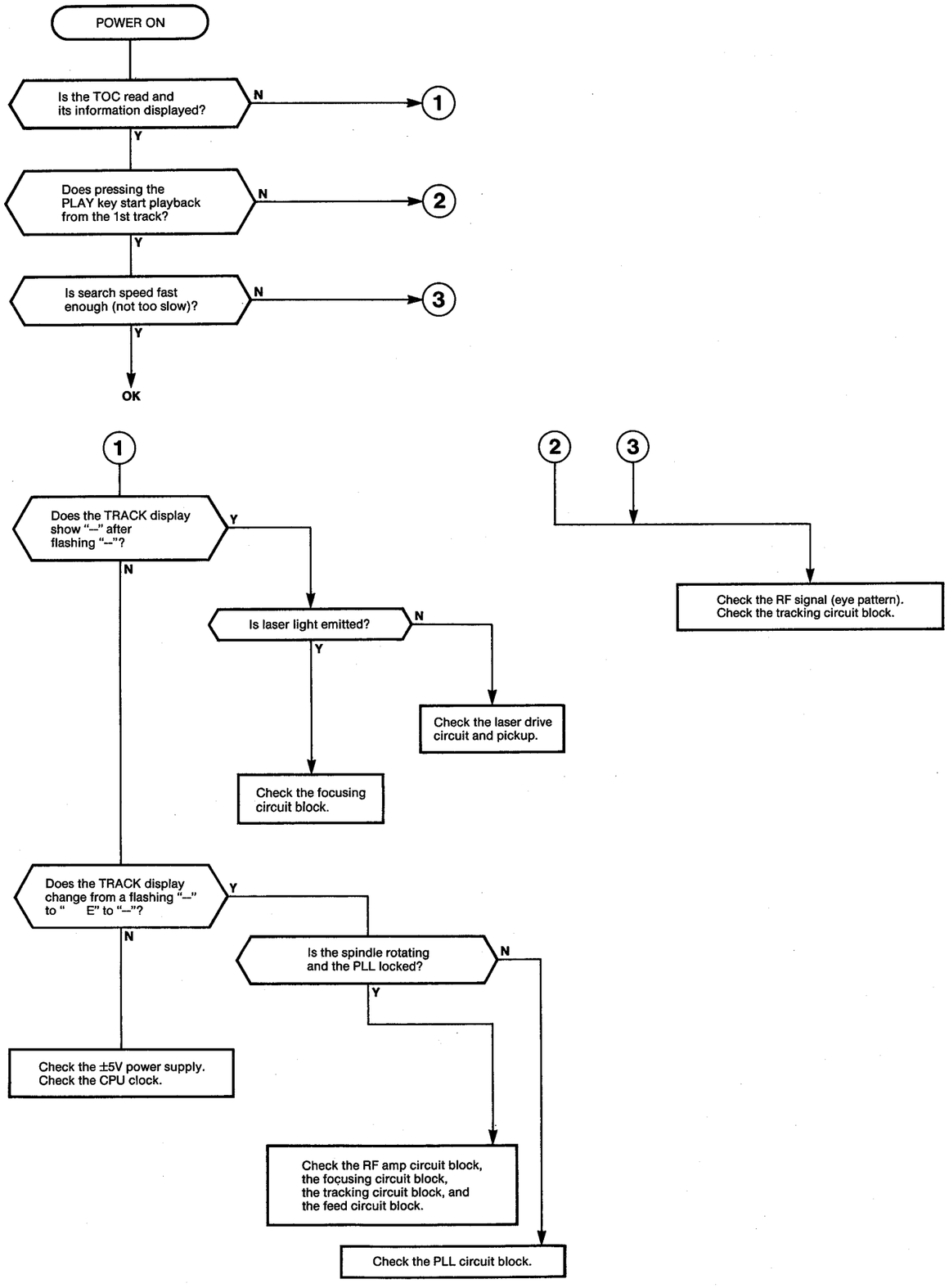
(1) Externe Stromquelle an Anschlußstecker CN901 abziehen, die Testschaltung (B) an TJ202, TJ204 und TJ901 der Hauptplatine anschließen und dann einen Frequenzganganalysator an die Schaltung anschließen.
(2) Am Frequenzganganalysator die »SPOT SELECT«-Taste 5 drücken und dann die »MEASURE«-Taste drücken.
(3) Externe Stromquelle an Anschlußstecker CN901 anschließen, EIAJ-Platte (CD-1) einlegen und Plattentitel Nr. 6 abspielen.
(4) VR202 auf eine GAIN-Anzeige von ±1,0 dB (±2,0 dB) am Frequenzganganalysator einstellen; dabei prüfen, ob die PHASE-Anzeige zwischen 35 und 55 liegt.



■ Einstellung des Frequenzganganalysator-Spot

1. Gerätenetzschalter auf »ON« stellen.
2. Fokussierservo einstellen.
   (1) Nach der Kalibrierung die »SPOT SET UP«-Taste drücken.
   Anzeige: SPOT NUMBER =
   (2) »SPOT-SELECT«-Taste 0 drücken, dann die »ENTER«-Taste drücken.
   Anzeige: SPOT NUMBER = 0
   (3) In oben beschriebener Weise die weiteren Modi wie folgt einstellen:
   ① FREQUENCY = 1000 Hz
   ② OSC LEVEL = 100 mV
   ③ INTEG CH-1 = 10 (mal)
   ④ INTEG CH-2 = 10 (mal)
   ⑤ DELAY TIME = 0
   ⑥ MODE = 0
   ⑦ PHASE RANGE = 0
   ⑧ OVER CH-1 = 11 Vrms
   ⑨ OVER CH-2 = 11 Vrms
   ⑩ GAIN LOWER = –1,0
   ⑪ GAIN UPPER = ±1,0
   ⑫ PHASE LOWER = 35
   ⑬ PHASE UPPER = 55
   ⑭ SCAN LIMIT = 0
   ⑮ CALIBRATION = keine Einstellung
   ⑯ ADDRESS = 2
   ⑰ DELIMITR = 0
   ⑱ EDIT = keine Einstellung
3. Tracking-Servo einstellen
   (1) Nach der Einstellung des Fokussierservo die »SPOT SET UP«-Taste drücken und nochmal den »SPOT NUMBER«-Modus eingeben.
   Anzeige: SPOT NUMBER =
   (2) »SPOT-SELECT«-Taste 0 drücken, dann die »ENTER«-Taste drücken.
   Anzeige: SPOT NUMBER = 5
   (3) In oben beschriebener Weise die weiteren Modi wie folgt einstellen:
   ① FREQUENCY = 1200 Hz
   ② OSC LEVEL = 100 mV
   ③ INTEG CH-1 = 10 (mal)
   ④ INTEG CH-2 = 10 (mal)
   ⑤ DELAY TIME = 0
   ⑥ MODE = 0
   ⑦ PHASE RANGE = 0
   ⑧ OVER CH-1 = 11 Vrms
   ⑨ OVER CH-2 = 11 Vrms
   ⑩ GAIN LOWER = –1,0
   ⑪ GAIN UPPER = ±1,0
   ⑫ PHASE LOWER = 35
   ⑬ PHASE UPPER = 55
   ⑭ SCAN LIMIT = 0
   ⑮ CALIBRATION = keine Einstellung
   ⑯ ADDRESS = 2
   ⑰ DELIMITR = 0
   ⑱ EDIT = keine Einstellung

Troubleshooting Flowchart


POWER ON
Is the TOC read and its information displayed?
N
Y
1
Does pressing the PLAY key start playback from the 1st track?
N
Y
2
Is search speed fast enough (not too slow)?
N
Y
3
OK
1
Does the TRACK display show "–" after flashing "--"?
Y
N
Is laser light emitted?
N
Y
Check the laser drive circuit and pickup.
Check the focusing circuit block.
Does the TRACK display change from a flashing "–" to " E" to "–"?
Y
N
Is the spindle rotating and the PLL locked?
N
Y
Check the ±5V power supply. Check the CPU clock.
Check the RF amp circuit block, the focusing circuit block, the tracking circuit block, and the feed circuit block.
Check the PLL circuit block.
2
3
Check the RF signal (eye pattern). Check the tracking circuit block.

Alignment Procedure

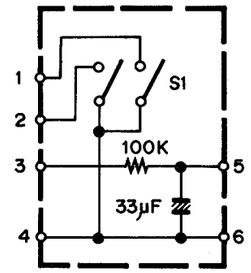
■ Measuring instruments and disc needed

(1)	Frequency counter	x 1	TR5821	Advantest
(2)	Probe	x 1	P6122	Tektronix
(3)	Millivolt ammeter	x 1	115A	Kikusui
(4)	Oscilloscope	x 1	SS-6613	Iwatsu
(5)	Frequency response analyzer	x 1	5010	NF
(6)	Jitter meter	x 1	KJM6135	Kikusui
(7)	Exclusive jig (A and B)	x 2		

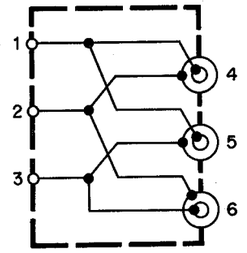
(8) Disc to be used:

1) EIAJ standard test disc	EIAJ CD-1
2) Philips test sample	NR5A
3) A-BEX Model SCD-1432 test disc	SCD-1432

< **Exclusive Jig Circuits** >



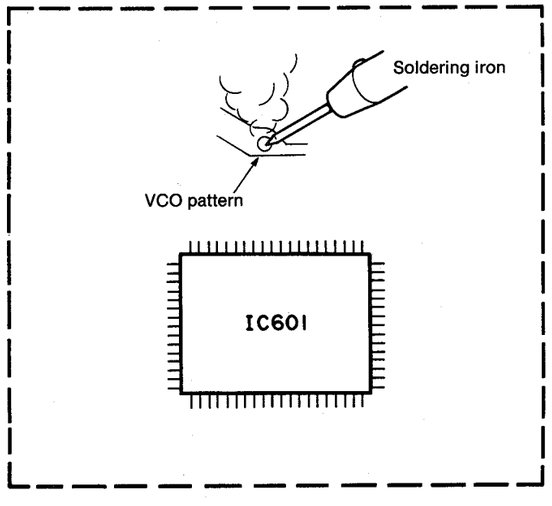
(A)

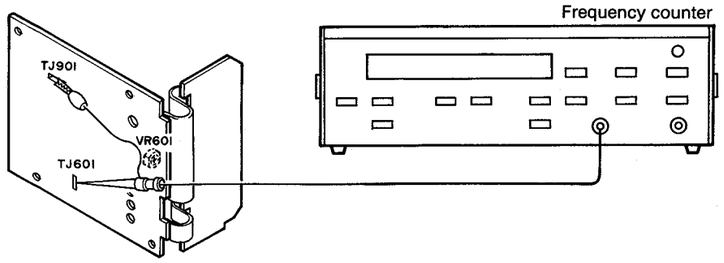


(B)

■ VCO adjustment

(1) Disconnect an external power to connector No. CN901, remove the screws holding the Main PCB.
(2) Open the VCO pattern on the solder side of the Main PCB by removing the solder with a soldering iron.
(3) Place the Main PCB in its original position, and connect the frequency counter to TJ601 and TJ901 (power GND).
(4) Connect an external power to connector No. CN901, and then adjust VR601 for a frequency counter reading of 4.3218 MHz ±50 kHz (±100 kHz).
(5) After this adjustment, remove the Main PCB and shortcircuit the VCO pattern.

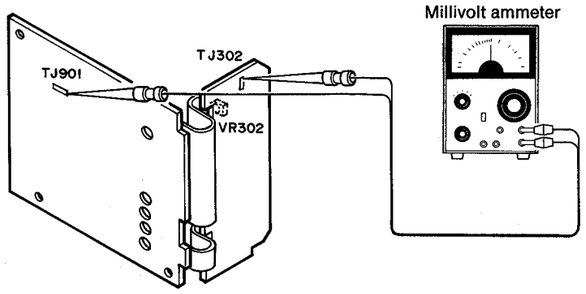




■ Tracking offset adjustment

(1) Disconnect an external power to connector No. CN901, connect a millivolt ammeter to TJ302 and TJ901 (power GND).

(2) Connect an external power to connector No. CN901, and adjust VR301 for a millivolt ammeter reading of 0 ±10 mV (±50 mV).

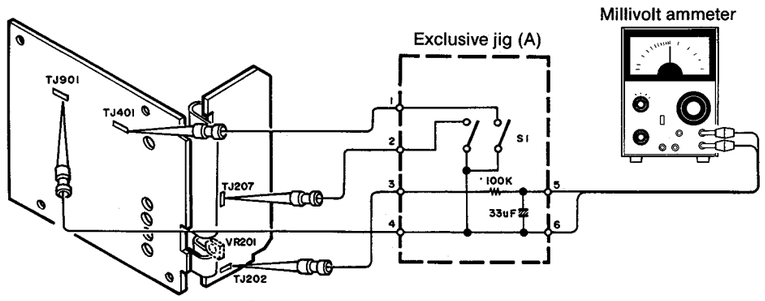


■ EF balance adjustment

(1) Disconnect an external power to connector No. CN901, connect the exclusive jig (A) (pins 1 to 4) to TJ401, TJ207, TJ202, and TJ901, and then connect the millivolt ammeter to pins 5 and 6.

(2) Connect an external power to connector No. CN901, load the 180 μm eccentric disc (SCD-1432) and play disc track No. 6.

(3) Switch S1 of the exclusive jig ON and adjust VR201 for a millivolt ammeter reading of 0 ±20 mV (±50 mV).

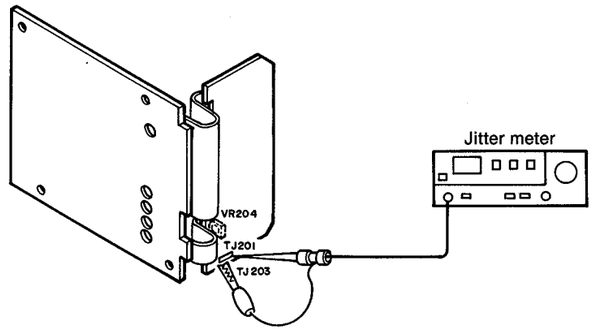


■ Jitter adjustment

(1) Disconnect an external power to connector No. CN901, connect an oscilloscope to TJ201 and TJ203.

(2) Connect an external power to connector No. CN901, load the EIAJ disc (CD-1), and then play desc track No. 6.

(3) Adjust VR204 to minimize the jitter on the jitter meter, and check that the jitter meter reading is no more than 14.5 ns.



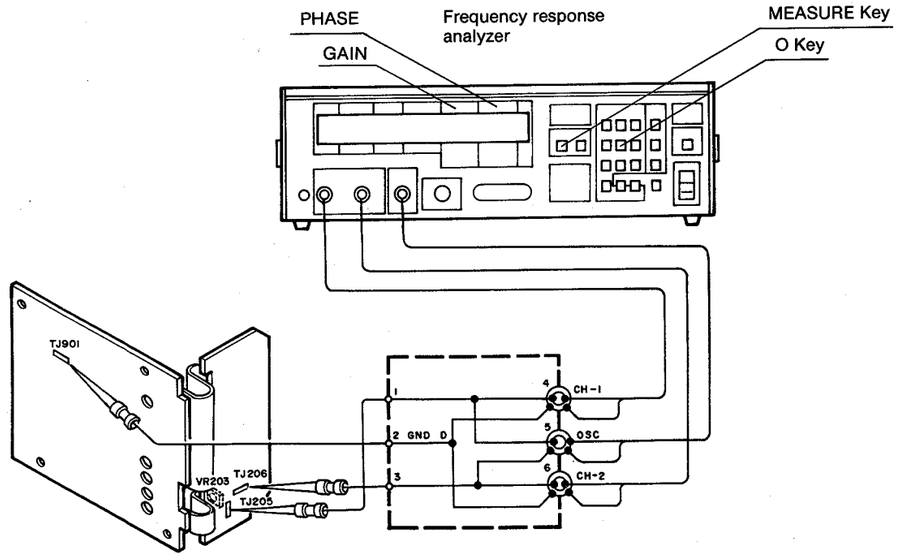
■ Focus gain adjustment

(1) Disconnect an external power to connector No. CN901, connect the exclusive jig (B) to TJ205, TJ206, and TJ901 of the Main PCB, and then connect a frequency response analyzer to the jig.

(2) Press SPOT SELECT key "0" of the frequency response analyzer, and then press the MEASURE key.

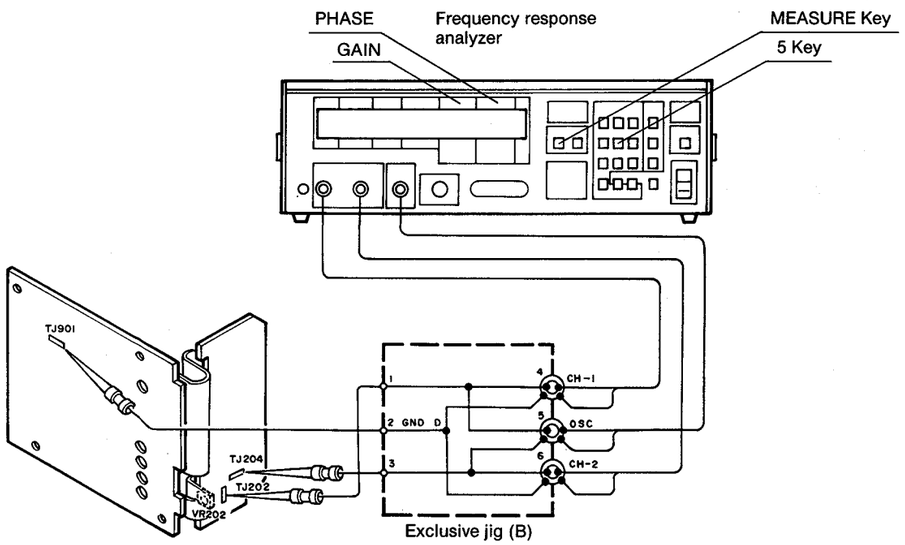
(3) Connect an external power to connector No. CN901, load the EIAJ disc (CD-1), and then play desc track No. 6.

(4) Adjust VR203 for a frequency response analyzer GAIN reading of ±1.0 dB (±2.0 dB), and check that the PHASE reading is between 35 and 55.



■ Tracking gain adjustment

(1) Disconnect an external power to connector No. CN901, connect the exclusive jig (B) to TJ202, TJ204, and TJ901 of the Main PCB, and then connect a frequency response analyzer to the jig.
(2) Press SPOT SELECT key "5" of the frequency response analyzer, and then press the MEASURE key.
(3) Connect an external power to connector No. CN901, load the EIAJ disc (CD-1), and then play disc track No. 6.
(4) Adjust VR202 for a frequency response analyzer GAIN reading of ±1.0 dB (±2.0 dB), and check that the PHASE reading is between 35 and 55.



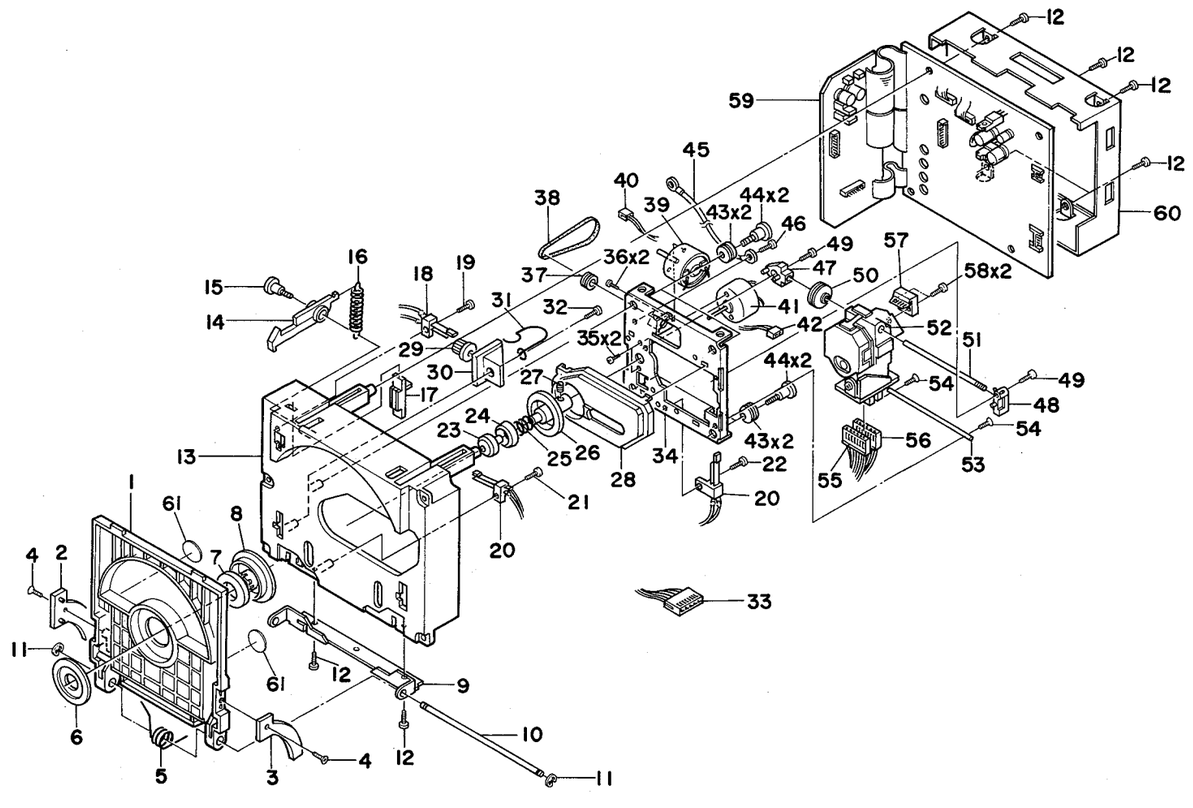
Exclusive jig (B)

■ Setup of the frequency response analyzer spot

1. Turn the set power ON.
2. Set the focusing servo.
   (1) After calibration, press the SPOT SET UP key.
   Display: [SPOT NUMBER =]
   (2) Press SPOT SELECT key "0", then press the ENTER key.
   Display: [SPOT NUMBER = 0]
   (3) As in the above, set the following modes.
   ① FREQUCENY = 1000 Hz
   ② OSC LEVEL = 100 mV
   ③ INTEG CH-1 = 10 (times)
   ④ INTEG CH-2 = 10 (times)
   ⑤ DELAY TIME = 0
   ⑥ MODE = 0
   ⑦ PHASE RANGE = 0
   ⑧ OVER CH-1 = 11 Vrms
   ⑨ OVER CH-2 = 11 Vrms
   ⑩ GAIN LOWER = –1.0
   ⑪ GAIN UPPER = ±1.0
   ⑫ PHASE LOWER = 35
   ⑬ PHASE UPPER = 55
   ⑭ SCAN LIMIT = 0
   ⑮ CALIBARATION = No setup
   ⑯ ADDRESS = 2
   ⑰ DELIMITR = 0
   ⑱ EDIT = No setup
3. Set the tracking servo.
   (1) After setting the focusing servo, press the SPOT SET UP key to enter SPOT NUMBER mode again.
   Display: [SPOT NUMBER =]
   (2) Press SPOT SELECT key "5", then press the ENTER key.
   Display: [SPOT NUMBER = 5]
   (3) As in the above, set the following modes.
   ① FREQUCENY = 1200 Hz
   ② OSC LEVEL = 100 mV
   ③ INTEG CH-1 = 10 (times)
   ④ INTEG CH-2 = 10 (times)
   ⑤ DELAY TIME = 0
   ⑥ MODE = 0
   ⑦ PHASE RANGE = 0
   ⑧ OVER CH-1 = 11 Vrms
   ⑨ OVER CH-2 = 11 Vrms
   ⑩ GAIN LOWER = –1.0
   ⑪ GAIN UPPER = ±1.0
   ⑫ PHASE LOWER = 35
   ⑬ PHASE UPPER = 55
   ⑭ SCAN LIMIT = 0
   ⑮ CALIBRATION = No setup
   ⑯ ADDRESS = 2
   ⑰ DELIMITR = 0
   ⑱ EDIT = No setup

Explosionsdarstellung CD-Player

Exploded view CD player



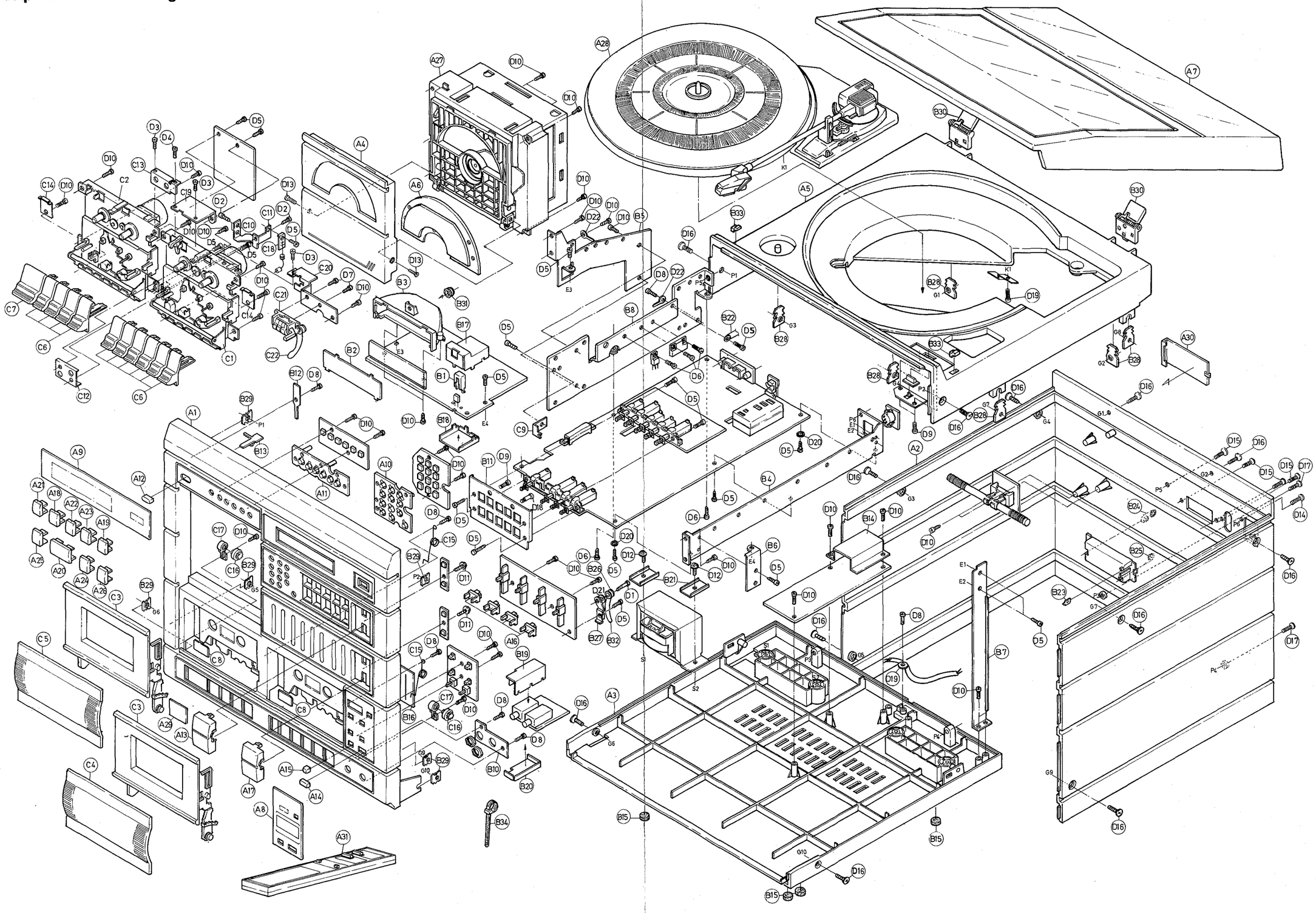
Ersatzteilliste CD-Player Mechanik

Spare parts list CD player mechanism

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe
44 099 00	**CD Player kpl. CPMC-KG 001**	**CD player assembly CPMC-KG 001**	A 27	G 2
44 102 00	CD-Plattenfach	Door CD	1	
44 103 00	Zahnbügel	Gear ¼	2	
44 104 00	Feder Plattenfach	Spring door	5	
44 105 00	Zentrierscheibe	Disc cramper	8	
44 106 00	Eject-Hebel	Eject lever	14	
44 107 00	Eject-Knopf	Eject knob	17	
44 108 00	Mikroschalter	Leaf switch	18	
44 109 00	Mikroschalter	Leaf switch	20	
44 110 00	Feder Antriebsteller	Spring table	25	
44 111 00	Antriebsteller	Disc table	26	
44 112 00	Sechskantschraube	Hexagon screw	27	
44 113 00	Dämpferzahnrad	Damper gear	29	
44 114 00	Feder Dämpfer	Spring damper	31	
44 115 00	Motorpulley Laser	Motorpulley laser	37	
44 116 00	Riemen Lasermotor	Belt lasermotor	38	
44 117 00	Motor Laser	Motor laser	39	
44 118 00	Motor Platte	Motor disc	41	
44 119 00	Laser Gewindestange links	Inner bearing left	47	
44 120 00	Laser Gewindestange rechts	Inner bearing right	48	
44 121 00	Pulley Gewindestange	Pulley feed	50	
44 122 00	Gewindestange	Feed rod	51	
44 123 00	Laserabtaster	Laser pick-up	52	
44 124 00	Gleitstange	Guide shaft	53	
44 125 00	Gewindewinkel	Feed angle	57	

Explosionsdarstellung Gehäuse

Exploded view housing



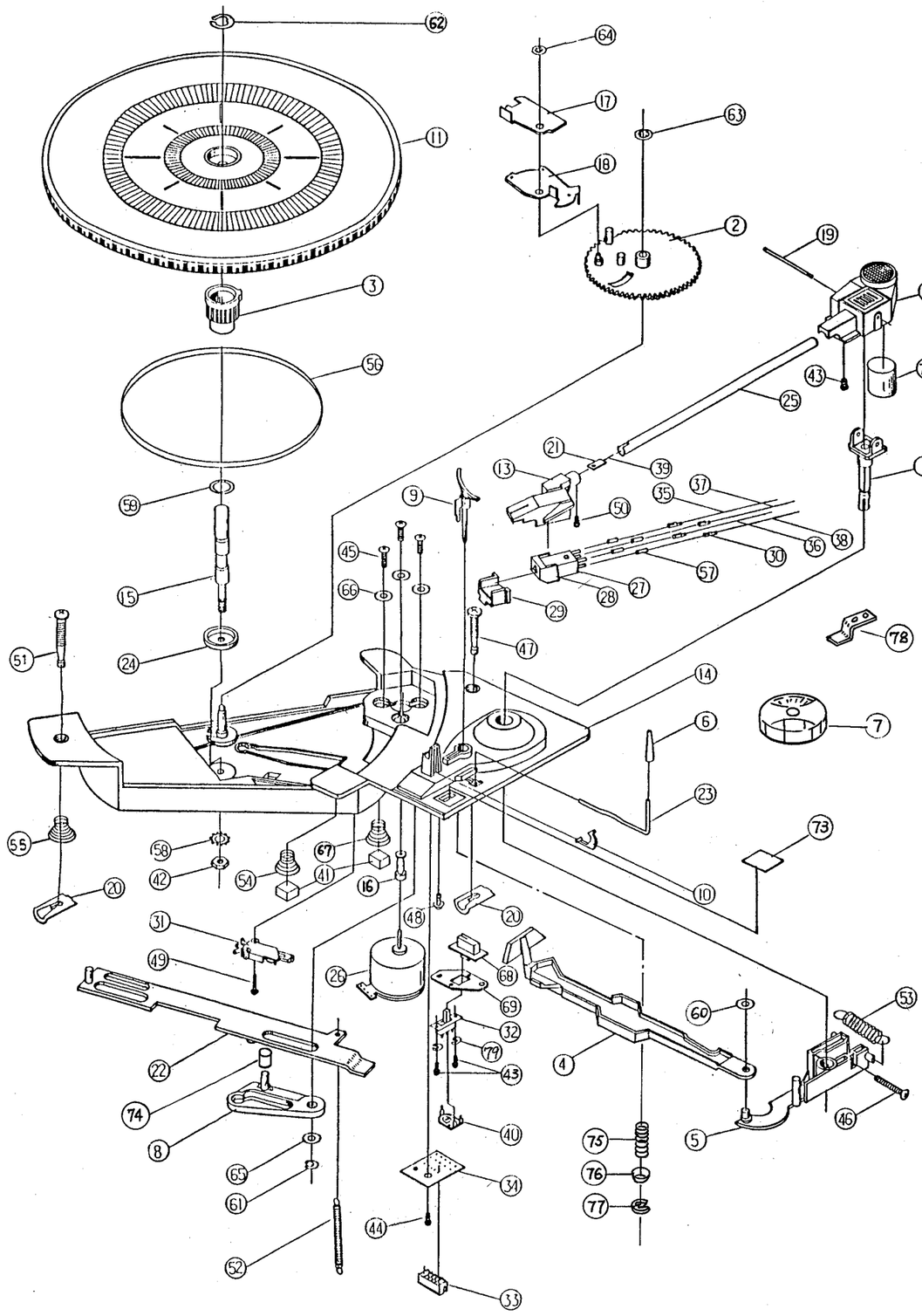
Ersatzteilliste Gehäuseteile

Spare parts list housing parts

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe
44 032 00	Gehäusefront	Front panel	A 1	C 9
44 033 00	Gehäuseseitenteile	Cabinet	A 2	D 4
44 034 00	Gehäuseboden	Bottom cabinet	A 3	C 5
44 035 00	CD-Plattenfachabdeckung	CD door cover	A 4	B 1
44 036 00	Gehäuseoberteil	Housing top	A 5	C 5
44 037 00	Fenster CD-Plattenfach	Window CD door	A 6	A 7
44 038 00	Abdeckhaube	Dust cover	A 7	C 6
44 039 00	Anzeigeblende Cassette	Tape LED window	A 8	A 5
44 040 00	Anzeigeblende Tuner	Display window	A 9	A 7
44 041 00	Druckknopfplatte Program	Push button plate program unit	A 10	A 4
44 042 00	Druckknopfplatte CD	Push button plate CD	A 11	A 4
44 043 00	Knopf CD EJECT	Knob EJECT	A 12	A 2
44 044 00	Knopf TUNING	Knob TUNING	A 13	A 3
44 045 00	Knopf Netzschalter	Knob power switch	A 14	A 2
44 046 00	Knopf HIGH SPEED	Knob HIGH SPEED	A 15	A 2
40 000 00	Knopf Schieberegler EQ	Knob EQ	A 16	A 3
44 047 00	Knopf VOLUME	Knob VOLUME	A 17	A 3
44 048 00	Knopf CD	Knob CD	A 18	A 3
44 049 00	Knopf TUNER	Knob TUNER	A 19	A 3
44 050 00	Knopf FM	Knob FM	A 20	A 3
44 051 00	Knopf TAPE	Knob TAPE	A 21	A 3
44 052 00	Knopf PHONO	Knob PHONO	A 22	A 3
44 053 00	Knopf AUX	Knob AUX	A 23	A 3
44 054 00	Knopf MW	Knob MW	A 24	A 3
44 055 00	Knopf MONO/STEREO	Knob MONO/STEREO	A 25	A 3
44 056 00	Knopf LW	Knob LW	A 26	A 3
44 057 00	Fernbedienung kompl.	Remote control	A 31	D 2
37 995 00	Batteriefachdeckel	Battery cover	A 30	A 3
44 058 00	Blattfeder CD Eject	Spring CD Eject	B 12	A 2
44 059 00	Gummifuß	Gum foot	B 15	A 2
44 060 00	Kontaktplatte Batterie	Battery contact plate	B 23	A 2
44 061 00	Feder Batterie doppelt	Battery spring double	B 24	A 2
44 062 00	Feder Batterie einzeln	Battery spring single	B 25	A 1
37 813 00	Haubenscharniere	Hinge assembly	B 30	B 0
44 063 00	Auflagegummi Haube	Gum dust cover	B 33	A 1
44 064 00	Cassettenfach TAPE A kompl.	Cassette case A assembly	C 3 + 4	B 6
44 065 00	Cassettenfach TAPE B kompl.	Cassette case B assembly	C 3 + 5	B 6
40 028 00	Taste Cassette schmal	Key cassette small	C 6	A 3
40 029 00	Taste Cassette breit	Key cassette large	C 7	A 3
40 795 00	Feder Eject	Spring Eject	C 15	A 0
40 790 00	Zahnrad Dämpfer	Damper gear	C 16	A 2
40 791 00	Dämpfer	Damper	C 17	A 2
44 066 00	A/W-Schaltseil	R/PB switch wire	C 18	B 1
34 287 00	Zählwerk	Counter	C 21	B 3
32 923 00	Riemen Zählwerk	Counter belt	C 22	A 3

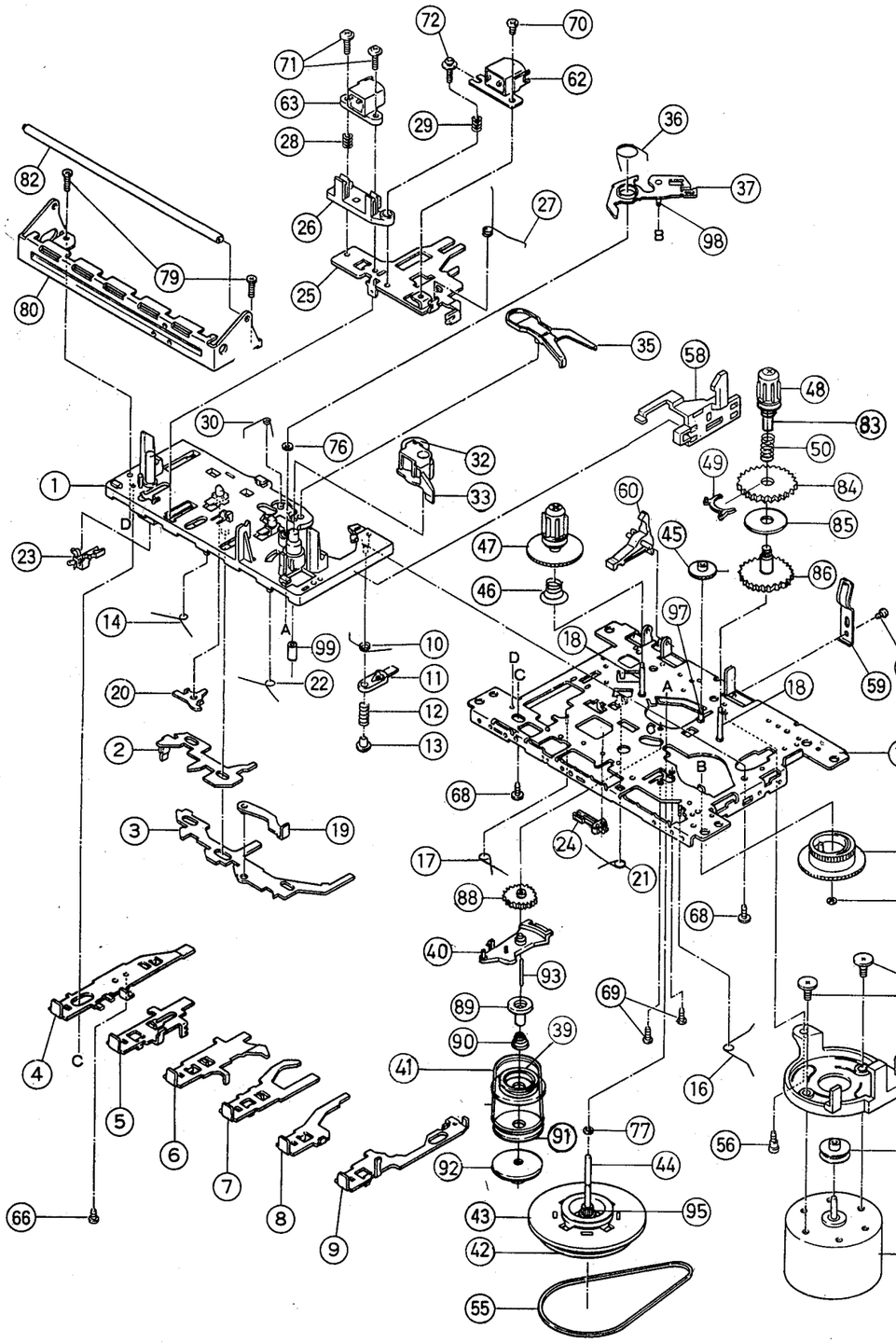
Explosionsdarstellung Plattenspieler

Exploded view phono

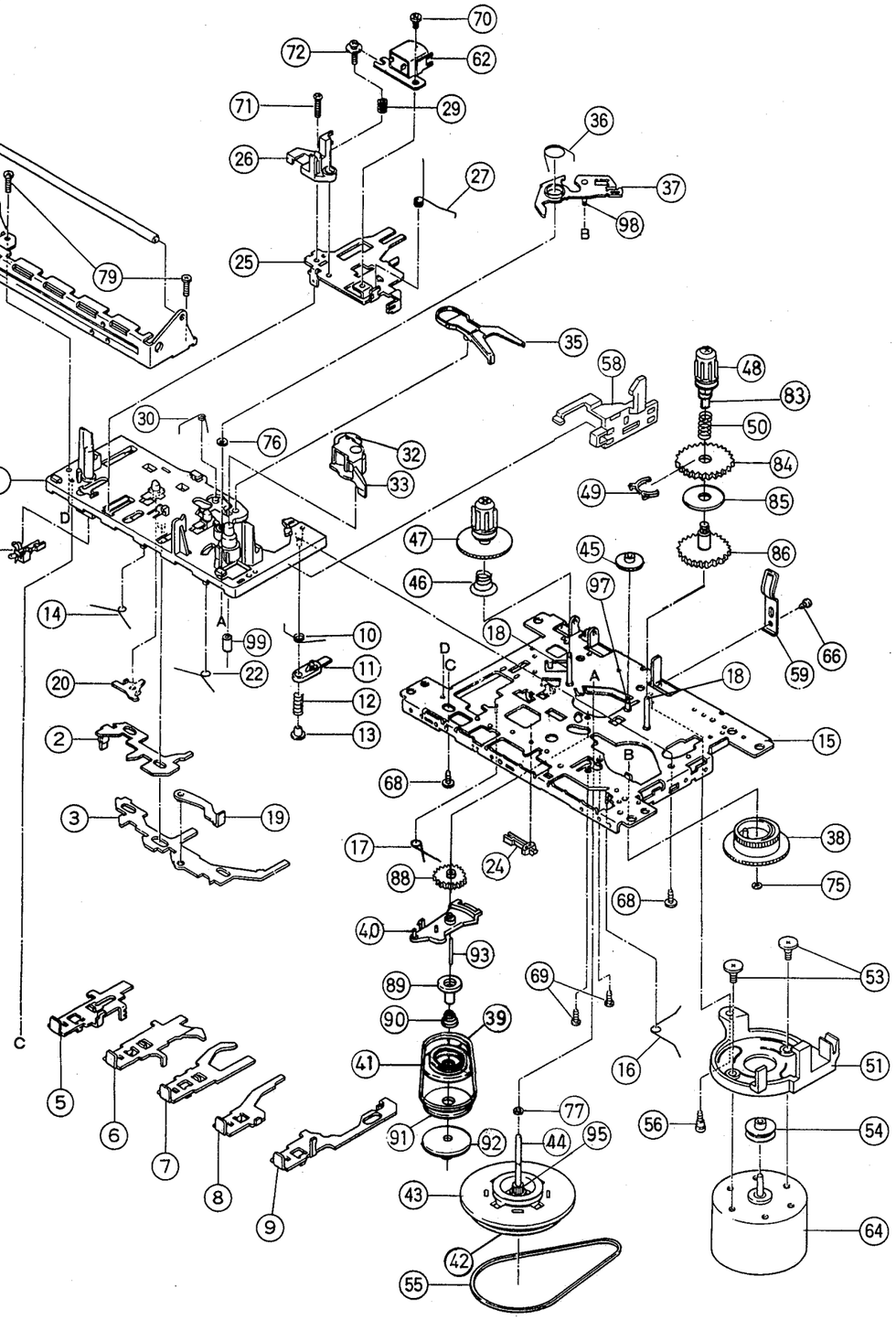


Explosionsdarstellung Mechanik
Exploded view mechanism

Aufnahme/Wiedergabe
Record/playback



Wiedergabe
Playback



Ersatzteilliste Cassettenrecorder-Mechanik

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe
44 126 00	**Mechanik kpl. A/W**	**Mechanism assembly R/PB**	C1/A	E 0
44 127 00	**Mechanik kpl. Wiederg.**	**Mechanism assembly playback**	C2/B	D 9
44 128 00	Feder Pauserasthebel	Spring pause lever	10	A 0
44 129 00	Pauserasthebel	Paus lever	11	A 0
44 130 00	Druckfeder Pauserasthebel	Spring pause lever	12	A 0
44 131 00	Sicherungsstöpsel Pause	Pause stopper	13	A 0
44 132 00	Mikroschalter MSW L54 1T	Leaf switch MSW L54 1T	23	A 4
44 133 00	Mikroschalter MSW-17820 MVDO	Leaf switch MSW-17820 MVDO	24	A 7
44 134 00	Bandandruckrolle kpl.	Pinch roller assembly	32 + 33	A 6
44 135 00	Tasthebel	Sensing lever	35	A 1
44 136 00	Kurvenzahnrad	Cam gear	38	A 2
44 137 00	Rutschkupplung kpl.	RF clutch assembly	39 + . .	A 7
44 138 00	Riemen Rutschkupplung	Belt RF clutch	41	A 4
44 139 00	Schwungmasse kpl.	Flywheel	42 + . .	A 8
44 140 00	Zahnrad Vorlauf	FF gear	45	A 1
44 141 00	Wickelteller links	Supply reel	47	A 3
44 142 00	Wickelteller rechts kpl.	Take-up reel assembly	48 + . .	A 4
32 876 00	Motorpulley	Motor pulley	54	A 5
44 143 00	Antriebsriemen	Main belt	55	A 5
44 144 00	Gleithebel Eject	Eject slide lever	58	A 2
32 451 00	Aufnahmesperrhebel	Record safety lever	60	A 5
34 349 00	A/W-Kopf	Rec./playb. head	62	C 6
34 348 00	Wiedergabekopf	Playback head	62	C 6
24 513 00	Löschkopf	Erase head	63	B 0
37 780 00	Motor	Motor	64	C 5

Ersatzteilliste Plattenspieler

Bestell-Nr./Part. No.	Bezeichnung	Description	Position	Preisgruppe
44 145 00	**Plattenspieler kpl. HP-H9-28**	**Player assembly HP-H9-28**	A 28	E 8
12 201 00	Kurvenrad	Cam gear	2	C 9
34 352 00	Starthebel	Starting lever	4	A 4
34 353 00	Rücksetzhebel	Return link	5	A 7
34 354 00	Knopf Lifthebel	Knob lift lever	6	A 1
34 355 00	Adapter	Adaptor	7	A 2
44 146 00	Schalthebel	Switch lever	8	A 3
44 147 00	Tonarmlift	Lifter	9	A 3
34 357 00	Riegel Tonarmstütze	Cramper tonearm rest	10	A 1
34 358 00	Plattenteller kpl.	Platter assembly	11 + 3	B 9
44 148 00	Plattentellerachse	Platter shaft	15	A 8
34 359 00	Motorpulley	Motor pulley	16	A 5
44 149 00	Schaltklinke Endabsch.	Friction link	17	A 2
44 150 00	Schaltklinke Endabsch.	Activating link	18	A 2
34 361 00	Klammer Transportsicherung	Transit spring	20	A 2
44 151 00	Hauptthebel	Operating plate	22	A 8
34 362 00	Lifthebel	Cueing lever	23	A 2
34 373 00	Tonarm kpl.	Tonearm assembly	25 + . .	D 6
44 152 00	Motor 2 RWK 1	Motor 2 RWK 1	26	C 7
34 581 00	System	System	27	C 6
34 582 00	Nadel	Stylus	28	C 3
24 028 00	Nadelschutz	Stylus cover	29	A 1
34 364 00	Mikroschalter	Micro switch	31	A 7
34 365 00	Schalter Geschw.	Speed selector	32	A 7
34 366 00	Transportsicherungsschraube	Bolt	47	A 3
34 367 00	Transportsicherungsschraube	Bolt	51	A 3
34 368 00	Feder	Spring	52	A 2
34 369 00	Feder	Spring	54	A 1
34 370 00	Feder	Spring	55	A 1
34 371 00	Riemen	Belt	56	B 0
32 866 00	Scheibe	Washer	59	A 1
32 868 00	Scheibe	Washer	62	A 0
44 153 00	Feder Lagerung	Spring	67	A 1
34 372 00	Knopf	Knob	68	A 2